The Dental Digest.

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Original Contributions.

IS IT NOT A BLOT ON THE PROFESSION?

By Geo. H. Cushing, D. D. S., Chicago.

In the March number of the Digest is a criticism of a communication entitled "A Blot on the Profession," in which the writer lays great stress on the fault so prevalent in the profession, of basing grave charges upon the unsupported statements of patients.

This is a very just criticism in a general sense, but has no application here.

In the cases cited the patients had not "discarded their former dentists." They were temporarily sojourning away from them, and having need for treatment during their absence from home, received such as seemed necessary at the time. They had no complaint to make of their regular advisers, but evidently had the fullest confidence in and admiration for them, and nothing was said that could in the slightest degree reflect upon their regular dentists, to whom they probably returned with unabated confidence.

The writer of the original article has a grave appreciation of the fault referred to, and is perhaps as careful in coming to conclusions based upon the mere statements of patients as is his critic.

With regard to text-books, the original article said, "few of the text-books treat this subject with the *fullness its importance demands.*" Now this must necessarily be a matter of individual opinion, and while the books may be entirely satisfactory to the critic, "they do not treat the subject with the fullness its importance demands," in the judgment of a great many others.

With reference to the fear expressed "that this phase of operative dentistry was not sufficiently or thoroughly taught in our schools," the writer formed his judgment upon the unqualified statements to that effect made to him by teachers in the operative department of several colleges.

Now whether it be "a blot on the profession" or not, the facts remain as stated in the original paper—that "the operations for the removal of calcareous deposits are many times entirely ignored, or, when undertaken, are frequently imperfectly and slightingly performed," and, "that the evidence of this has been a matter of observation for many years by those who have given proper and earnest attention to the subject."

It is quite evident that the critic must have been very fortunate in the class of patients coming to him from other dentists, or that he does not observe these cases as a great many members of the profession do.

AMALGAM AND ITS MANIPULATION.

By J. N. Crouse, D. D. S., Chicago.

Aside from the imperfections of manufacture of the ingredients of amalgam, and the methods of compounding them, there is another barrier to its success which I am inclined to think is not appreciated, and that is, the difficulty of packing it in a perfect manner in the cavity.

When Dr. Black described the difficulty he had in making a perfect filling in a steel cup, I did not understand what he meant; but when I began to experiment to ascertain what combination of materials would make the best amalgam, and attempted to fill cavities in some of the same kind of steel cups, then I realized to what he referred. Fillings that I was sure would show perfect edges, so far as the manipulation was concerned, showed many imperfections under the microscope, and with the greatest care defective edges would occur.

Repeating the experiments many times only strengthened my belief that the most difficult problem in the amalgam question is, how to pack it into the cavities perfectly. If, with an amalgam which when tested by a micrometer neither expands nor contracts,

I could not always make a perfect filling in a cavity in a steel die, what must be the percentage of failures of amalgam fillings in the mouth, remembering the many inaccessible places in which it is used, and often without the same care that is given to gold.

Where the great difficulty in making perfect fillings lies, is not altogether clear in my mind, in fact, it is a mystery to me, and I wish to make a plea here to every earnest practioner to make some fillings out of the mouth, place them under a magnifier, and then see if his surprise is not as great as mine was. For I apprehend that the conceit will be taken out of many operators to an extent not dreamed of. If, however, they can make perfect fillings each time, will they please state, for the benefit of the readers of the DIGEST, what is their method of manipulation?

I am inclined to think that pressure used on one portion of a large amalgam filling, while packing it, should be very light, as heavy pressure on one part springs or bends the amalgam away from another part where it may pass unobserved. If this theory is correct, the filling will surely be disturbed many times by the occluding tooth striking it before it has hardened.

The removal of the rubber-dam, unless extreme care is exercised, will cause a shifting of some portions of the mass, owing to the tendency of amalgam to bend or spring, and thus unsuspectedly make defective edges.

The chances are, that the use of a matrix would be more beneficial for this material than for any other, and it should not be removed until the amalgam is hard.

I do not claim that I have solved the problem by any means, but simply throw out a few hints for confirmation or disapproval by the experiments of others. Feeling sure that we have more nearly solved the problem of the manufacture than of the manipulation of amalgam, I have written this article more with a view of getting the co-operation and assistance of logical practitioners, who will prove each step, than of attempting to throw much light on this difficult question.

FOR SICKNESS FOLLOWING THE ADMINISTRATION OF CHLOROFORM.—Lewin finds that a linen cloth steeped in vinegar placed over the face of the patient and allowed to remain for at least three hours will prevent the sickness following the administration of chloroform.—*Rev. de Chir.*, September, 1895.

CONCERNING DISCUSSIONS ON THE COLLEGES.

By W. H. Duddy, D. D. S., Boston, Mass.

This appears to be an age of reform in all the walks of life, but the reader of history discovers the fact that many of the so-called reforms in past times have been undertaken under different names. At regular periods these reform movements spring into life and are developed by a popular wave of agitation that sweeps through the land. The idea of this agitation and discussion has been repeatedly scoffed at by those who take no interest in the affairs associated with our daily lives. Nevertheless, no great reform has ever been completed, no important question decided, no advancement of the human race accomplished, without these questions having the search light of investigation turned upon them by serious and determined men.

This contagion of reform has apparently reached the threshold of our dental colleges, or at least the articles in the dental journals relative to the deficiency of some colleges would so indicate. While it is a comparatively easy matter to formulate a plan for conducting a college, it is much more difficult to carry out that plan. Any plan, to be successful, must be one that will permit slow and gradual changes to be made in the college curriculum, for a radical change is seldom a salutary one.

We have heard a great deal of complaint and criticism about the manner of conducting our colleges and the course of study pursued in them. There is a class of dentists who are opposed to the teaching of any branches not directly germane to dentistry, but they are mostly the older practitioners who have not kept pace with the rapid strides made in dental science. There is another class who go to the other extreme and lay great stress upon the desirability of students acquiring as much or more knowledge of the medical than of the dental art. Fortunately there is a happy mean between these two ideas, and that consists in the student acquiring as much knowledge as possible in the dental and a fair instruction in the allied medical studies.

It has frequently been remarked that the examination for admission is not rigid enough, and that too many students enter who are incapable. While this may be true, it is difficult to avoid it. Either the colleges must have an iron-clad rule, requiring a cer-

tain percentage in all studies, or else they must permit applicants who fall a little short of the standard, but who have a reasonable knowledge of the studies required, to enter the college at their own risk. If the first plan be adopted, there would be a large reduction in the number of students and a consequent diminution of revenue. The second plan, which seems to be in vogue at the present time, is manifestly more just, as it gives to everyone, except the very ignorant, a chance to better himself.

Regarding that phase of the question which relates to "sacrificing the practical to the theoretical side of dentistry," I heartily endorse every thought expressed by Dr. G. Carleton Brown in his paper in the February number of the DIGEST. When the colleges permit students to matriculate, they enter into a contract and virtually agree to do all in their power to make them proficient in the art and science of dentistry. Thus guaranteeing a certain degree of proficiency, if the graduates are unable to perform with any degree of assurance the ordinary dental operations, the colleges not only do great injustice to the students, but also force them to impose upon all who come under their care.

While the colleges have not reached perfection in the art of teaching, they have certainly improved greatly, and we should not forget that each improvement is the result of earnest effort on the part of their faculties. I do not wish to be understood as wholly defending the colleges, nor as severely criticising them, but simply as endeavoring to look at all sides of the question. It is too broad a one to be satisfactorily settled by any individual, but discussion will aid in its solution.

TREATMENT OF CERTAIN TUMORS IN THE MOUTH WITH CHLORATE OF POTASH.—Dumontpallier recommends this treatment in high terms, as he has been very successful with it in his practice. He applies it, finely pulverized, to the tumor four times a day, and administers it internally also, in a solution of 4 grams to 120 grams of water. He ascribes its beneficial effect to the fact that it passes into the secretions of the salivary glands, and thus keeps the tumor under its influence all the time. This treatment must be continued two or three months and the kidneys must be kept in good order. All sources of irritation from the teeth must be carefully exterminated. Before resorting to the bistoury he urges this treatment to be tried in almost all cases.—*Bulletin Med.*, March 11.

TO REPAIR BROKEN RUBBER PLATES.

By C. H. West, D. D. S., Farina, Ill.

If it be a lower plate, fill a lower impression cup with softened modeling compound and, after placing the broken parts perfectly together, careful embed the teeth downwards in it. With a large engine bur now cut out the crack from the inside, or maxillary side of the plate, to the teeth, and nearly to the lingual and labial surfaces. Then with a hot spatula spread new rubber over the fresh surfaces, which will adhere to them, and the space can be thoroughly packed a little more than even with the surrounding surfaces. Now carefully run model in the plate and over the freshly packed rubber, separate the compound from teeth, bur out, pack the lingual and labial surfaces the same way, and it is all ready to flask and vulcanize, without having to open, and all of the break has been burred out and filled with fresh rubber. After vulcanizing, the surplus rubber in the maxillary groove can be cut out even with the surrounding surfaces.

Upper plates are treated on the same principle—burring out, packing the maxillary and labial surfaces before running the model, after which bur the lingual surfaces to a feather edge posteriorly from the teeth, pack rubber with a hot spatula, flask and vulcanize. This plan saves opening flasks, washing out wax, etc., and the expansion of the soft rubber during the process of vulcanizing fills every open space and makes a very satisfactory job with a very little trouble.

To replace a broken tooth or a block of teeth, cut out from the lingual surface with a file or large bur, under where the broken piece was, until the pins of the new tooth or block do not strike the plate. Fit the new piece to place, wax it up, and flask and vulcanize as above described.

Hæmostatics in Hæmophilics.—Dr. H. C. Howard, of Champaign, Ill. (*American Jour. of Surg. and Gyn.*), has for twenty years used hypodermic injection of a saturated solution of tannic acid around the seat of bleeding. Dissolve the acid by aid of heat. Make from three to six injections around the seat of the injury, using a saturated solution as hot as can be stood. Also inject hypodermically one-twentieth of a grain of strychnine and repeat every two hours if needed. Strychnine by its influence upon the vasomotor nerves usually checks bleeding in a short time, but when the amount of blood lost is considerable it is best to adopt the above method of local treatment.

Digests.

The Dental Cosmos for April, 1896.

"GUAIACOCAIN CATAPHORESIS AND LOCAL ANESTHESIA, OUTFIT AND TECHNIQUE," by Wm. James Morton, M.D., New York City. So many inquiries have been addressed to me asking for information as to methods of procedure, that I gladly take the opportunity to answer them collectively through these columns.

Source of Current.—The "*continuous*" or "*constant*" electric current, whether obtained from the street mains or from any reliable battery, is the current required in cataphoric procedures. Alternating and pulsating currents are not practically available. The "Edison current," 110 volts, as in common use, requires a controlling device. The best is the "Wheeler Fractional Volt Selector." For controlling street main currents of a higher voltage than 110, special devices must be obtained.

As to a battery, a portable "red acid cell" of twenty cells, or any form of Leclanche cell, say thirty cells, or any other good battery, will answer every purpose.

Electrodes.—These, devised and invented by the writer, are an "indifferent" or "dispersing" electrode and "active" electrodes. The small dispersing electrode is a circular disk of carbon, three inches in diameter, covered with two layers of sheet punk or amadou, bound at the edges by an insulated wire pressing into a groove. This is large enough for use in cases of anesthetization of the gums or of sensitive dentine. For large areas of skin a larger dispersing pad electrode, say 6 x 6 inches, should be procured.

The active electrodes vary in shape according to the purpose to which they are put, but retain the special device of perforations to hold solution, etc. For the skin flat single plates of carbon or block tin of circular shape suffice. For the mouth in general a flat electrode resembling a mouth-mirror is convenient.

For the gums, for use in extraction, implantation, etc., the electrode is made tong-shaped and unlike any electrode of this shape formerly constructed; *both* plates are of the *same* polarity.

The carbon, or block tin, in the active electrodes is one-fourth of an inch thick, is perforated freely to about two-thirds of its depth by drill holes one millimeter in diameter, or is perforated completely, and a shallow reservoir provided behind it to hold an excess of solution. The body of the electrode is of ebonite, raised two to three millimeters at the edges of the plates to form a cup into which is inserted a piece of soft and porous blotting-paper cut to fit exactly, or a soft piece of felt or other absorbent material.

For sensitive dentine the active electrode is a small stiff piece of platinum wire, tubular at its end, and perforated from the sides into the tube in order that it may hold an excess of the solution. Around the end of this "applicator" is wrapped a pledget of absorbent cotton.

This constitutes in the main all the electrodes necessary; modifications for special cases will suggest themselves.

Rheostat or Current Controller.—If the current from the street mains is to be used, preference has already been expressed for the "Wheeler Fractional Volt Selector." This same apparatus is equally available with a battery current. Its chief utility is in relation to sensitive dentine, where it is of highest importance that the initial voltage employed and current strength attained shall not cause pain. But in relation to the skin and mucous membrane any ordinary rheostat will answer the purpose.

Again, it is quite possible to one at all familiar with his "galvanic" battery to use the ordinary cell selector to bring into circuit a limited number of cells, thus working with a low voltage, and to regulate the flow of current from this small number of cells by aid of common water rheostats, provided that ample sponge tips break the strength of the first water contact.

An instrument like the fractional volt selector, however, saves trouble and annoyance.

Milliamperemeter.—Not only is it necessary to regulate the voltage employed, but also it is equally essential to have an instrument to record the rate of flow of the current attained. This of course varies according to the voltage, or, what is more important, according to the resistance, which in this case is tissue. This rate of flow termed "current strength" is measured in amperes, and in medical and dental work in thousandths of an ampere,

namely, milliamperes. A very small fraction of a milliampere causes pain in sensitive dentine. No reasonable idea of "dosage," nor means of comparison with other cases can be had without the record of a milliamperemeter. It is a constant guide to the administrator.

Any good milliamperemeter will suffice, but its scale should be large and easily read. An instrument recording from one up to ten milliamperes is preferable.

Solutions and Fluids.—Aqueous solutions of from four to thirty per cent. of hydrochlorate of cocain may be used. The writer, by combining guaiacol and anhydrous hydrochlorate of cocain, has found what seems to be a new compound rather than a solution. To secure uniformity of action (for some guaiacols are far more irritating than others), the solution or compound is termed *guaiacocain.* It is a ten per cent. mixture of hydrochlorate of cocain in pure guaiacol; this percentage may, if desired, be increased to thirty per cent. This solution, as above given, answers every purpose perfectly for anesthetization of dentine and of the skin, but for use upon mucous membrane it should be diluted to at least one-half, or otherwise slight and superficial destruction of tissue may ensue. I use for dilution a ten per cent. solution of cocain in glycerol, mixing it with guaiacocain in equal parts. Guaiacocain may be procured of McKesson & Robbins, New York, or at dental depots.

Technique.—Skin. Using aqueous solutions of cocain, the skin must first be thoroughly washed with soap and water. When guaiacol is employed, this is unessential.

Mucous membranes.—No preliminary preparation of the mucous membrane is required.

As to the active electrodes, the solution is *first* dropped into the perforations until they are full; the absorbent material is then fitted to the shallow ebonite cup or wrapped about the applicator, and a liberal supply of the solution dropped upon it. It is now ready for use.

The flat electrode is applied directly over the spot to be anesthetized and pressed with some firmness against it, as, for instance, over a cancrum oris of a buccal surface.

In the case of the tongs electrode, some care is requisite to secure a proper adjustment and to secure uniform action. It is well,

after the electrode is in place, to pack in absorbent cotton, not too wet with solution, to fill up inequalities of contact, or to bridge over (in certain cases) the gap between the blades.

For dentine, the cavity is first filled (a rubber-dam should be used) with a pledget of absorbent cotton dipped in the guaiacocain solution (avoiding a surplusage and yet not too dry); the applicator itself should then be dipped in the solution until it holds all it can, and a small layer of cotton be twisted about its end. During treatment the current may be turned off, possibly twice, and the pledget in the cavity be freshly dipped in the solution, or, as I prefer, by the use of my own applicator, this pledget may remain *in situ* and the fresh supply be furnished by removing and dipping the applicator itself into the solution; or, better still, a few drops of fresh solution may be from time to time dropped into the tip of the applicator by aid of a pipette, thus avoiding entirely what is certainly objectionable, and that is, any interruption of the flow of the current.

The dispersing electrode may be held in the hand, may be held by the operator upon the cheek or beneath the lower jaw, or placed upon the chest or back, or, in short, anywhere at a reasonable distance from the active electrode. The latter, the active electrode, is to constitute a positive pole, and the former a negative pole. To determine the polarity, apply a few drops of a saturated solution of iodin of potassium to a piece of paper and test the two terminals of the cords; free iodin will appear at the positive terminal and cause an iodin stain. Or test in the same manner by aid of a piece of litmus-paper wet with water; the positive terminal will turn the paper red, the negative will turn it blue.

Everything now being ready, the connections tested and polarity having been carefully determined beforehand, the current may be "turned on" most gently and gradually.

In the case of sensitive dentine, skill, carefulness, and experience are essential. The first onset of the current may at the best cause a slight burning pain. To avoid this contingency, it is well to give the solution five minutes' time to effect a superficial anesthesia prior to applying current. The applicator is adjusted, and the current, which cannot be too gradually applied, is then brought into circuit. The patient will feel a slight burn-

ing sensation, which in a moment will subside, when more current may be added. Each accretion of current during the first five minutes will cause the same sensation. Thus the treatment is followed up, step by step, consulting the patient as to the slight pain, until, in about five to seven minutes' time, it will be found that the current strength may be largely increased without causing any sensation whatever. At this time I carry the current up to from two to two and one-half milliamperes, and, after two to three minutes at this current strength, consider the dentine sufficiently benumbed to endure operative procedures without pain. A point of prime importance is to avoid movements or removal of the applicator during the current flow; for, as is well known, a "steady" current produces no reaction of motion or sensation, while a "varying" current produces these reactions most unpleasantly to the patient.

With these hints in mind and with a little experience, not only dentine, but the contents of the pulp-cavity, and even the tissues outside of the tooth, may be effectually anesthetized via the pulp-chamber. And it may be mentioned in passing, that not only may anesthetizing substances be thus employed, but also any other remedy—germicidal, antiseptic, escharotic, etc.—which it is desired to apply to the tissues above named.

British Journal of Dental Science for April, 1896.

"ORAL SURGERY," by Edmund W. Roughton, B. S., M. D. (Lond)., F. R. C. S. Eng. *Diseases of the Temporo-Maxillary Joint.* The temporo-maxillary articulation is liable to the same diseases that affect other joints, although not with the same absolute or relative frequency. The following are the most important affections.

Acute Non-Suppurative Arthritis.—This may result from injury, gonorrhœa, rheumatism, or syphilis. The synovial membrane is the structure most affected, the condition resembling synovitis of other joints. The chief symptoms are pain and swelling in the region of the joint and inability to open the mouth. The pain may radiate to the ear or temporal region. The masseters and temporal muscles are contracted and hard. After two or three weeks the acute symptoms subside and the joint may return to its normal condition, or may remain more or less stiff from the formation of adhesions inside or outside the synovial cavity.

Treatment.—The cause of the joint disease must be treated with suitable remedies, and the joint must be kept at rest by the application of an elastic bandage. The food should be entirely fluid, so that mastication may be suspended. After the acute symptoms have subsided an effort should be made to prevent the adhesion by the use of counter-irritation over the joint, by passive movement of the jaw and massage.

Acute Suppurative Arthritis.—This condition may be due to a wound of the joint, or it may occur in the course of pyæmia, scarlet fever or measles; in these cases the trouble starts in the joint itself. In other cases suppuration may extend to the joint from neighboring parts, such as the ramus of the jaw or the middle ear; in the latter case the pus finds its way into the joint through the Glaserian fissure.

The symptoms are in the first instance the same as those of non-suppurative arthritis, but on the advent of suppuration the local symptoms become greatly intensified, and are attended by febrile disturbance. The pus has but little tendency to reach the surface, being bound down by firm fibrous structures; it is prone to burrow deeply and may find its way into the ear through the Glaserian fissure, into the skull through the floor of the glenoid cavity, or amongst the tissues of the neck, causing in some cases thrombosis of the internal jugular vein. The most important point in the *treatment* is to evacuate the pus as soon as possible by the use of the knife.

Rheumatoid Arthritis.—Rheumatoid arthritis of the temporo-maxillary joint presents very similar features to those observed in other joints. It may attack young subjects, especially delicate females, or persons over fifty who are already suffering from the disease in other parts. It may affect one or both sides.

The structures composing the joint are greatly changed. The cartilages become worn away, leaving the articular surfaces of the bone uncovered. The inter-articular fibro-cartilage often disappears entirely quite early in the course of the disease. The articular surface of the condyle becomes flattened and worn away, and is usually roughened; it is only rarely that it displays the eburnated or porcellanous appearance so often seen in other joints. The neck of the condyle becomes absorbed, so that in some cases the mandible may look almost as if its condyle had

been taken off with a saw. In some cases the condyle becomes greatly hypertrophied, causing the symphysis to deviate towards the opposite side of the face; it is thought by some that this condition, although usually the result of rheumatoid arthritis, may sometimes occur in persons who are otherwise healthy. The glenoid cavity is often enlarged, encroaching upon the eminentia articularis; its depth is usually diminished by an irregular deposit of bone, and its surface is denuded of cartilaginous covering. No marked changes in the synovial membrane or ligaments have been observed or recorded.

The symptoms are pain and creaking on movement, stiffness of the joint, some general fullness, and in rare cases, when the condyle is enlarged, marked deformity. In the later stages of the disease, movement of the joint may be so restricted that the patient can only open the mouth to a very limited extent, and is quite unable to masticate food. *Treatment* is very unsatisfactory, the disease being in most cases incurable. Relief may sometimes be obtained by the use of small repeated blisters, hot sponging, keeping the joint covered so as to protect it from cold, and the frequent use of passive movements by means of a screw gag; very little force must be used, or more harm than good will be done. When movement is greatly restricted the condyle may be excised (see Fixity from Ankylosis).

Tubercular Arthritis.—Tubercular disease of the temporo-maxillary joint is a very rare affection. It resembles tubercular disease of other joints. The synovial membrane becomes thickened and succulent, the cartilages eroded, and the articular surfaces carious or necrosed. Complete bony ankylosis may ensue.

The treatment consists in the prolonged use of rest and constitutional remedies. Should these means fail, the diseased structures must be thoroughly removed by operation.

Fixity of the Mandible.—Inability to open the mouth may be due to three conditions, viz., spasm of the muscles of mastication, ankylosis of the temporo-maxillary articulation, and cicatrices between the two jaws.

Fixity from Spasm.—Spasm of the muscles of mastication may be due to some affection of the central nervous system, such as tetanus; in such cases the closure of the mouth is of no impor-

tance as compared with the disease of which it is a symptom. In women it may be due to hysteria.

The most frequent cause is some inflammatory trouble in the neighborhood of the mandible or temporo-maxillary joint, such as mumps, inflammation of the lymphatic glands or impaction of a lower wisdom tooth. It not unfrequently happens that, owing to want of room between the ramus of the jaw and the second molar tooth, or the malposition of the wisdom tooth, the latter is unable to erupt; the pressure which it exerts upon neighboring parts produces a reflex tonic spasm of the masseter and internal pterygoid muscles. As a rule the spasm subsides as soon as the source of irritation is removed, but in some cases the inflammatory condition arising around the tooth spreads to the adjacent muscles, setting up a myositis which may result in permanent contraction.

Spasmodic closure due to an impacted wisdom tooth is most common about the age of twenty, but may occur in much older persons, in whom eruption of this tooth has been delayed. Spasmodic closure may last a long time (in one recorded case as long as two years) and may be immediately relieved by removing the cause of irritation.

Treatment.—The mouth must be opened by means of a screw gag, whilst the patient is under the influence of chloroform. The wisdom tooth should then be extracted, or the second molar should be removed so as to allow room for it to erupt.

Fixity from Ankylosis.—Inflammatory affections of the temporo-maxillary joint may lead to a varying degree of stiffness or impaired movement. The stiffness may depend upon adhesions outside the joint, fibrous ankylosis of the articular sufaces, or in more severe cases (especially those following upon suppurative arthritis), actual bony ankylosis. If the stiffness is dependent upon fibrous adhesions, a certain amount of movement is obtainable either by the voluntary effort of the patient or by the use of the screw gag when the patient is under the influence of chloroform. In cases of osseous ankylosis the jaw is absolutely fixed.

Treatment.—In recent cases of stiffness from external adhesions or from fibrous ankylosis, an attempt may be made to restore movement by the forcible use of the screw gag. It is, however, but seldom that any permanent benefit results. Should this meth-

od of treatment fail, two other courses are open to the surgeon, viz., subcutaneous division of the adhesions and excision of the condyle.

The division of adhesions is performed by passing a very narrow tenotomy knife into the joint immediately in front of the temporal artery and carrying it freely round the condyle, completely dividing the external lateral ligament, and partially the insertion of the external pterygoid muscle. The depth of the incision must be carefully measured to avoid wounding the middle meningeal artery. The immediate result of the operation is very good, but relapse is very likely to ensue.

The most satisfactory treatment is excision of the condyle. This may be effected through the mouth, as practiced by Dr. Meads, but it is best done from without by the following method. An incision 1½ inches long is made along the lower border of the zygoma. The parotid gland and branches of the facial nerve being drawn down, the masseter fibres are cleared away from their insertion, and the joint exposed. The neck of the condyle is then divided with a saw, trephine or chisel, the condyle turned out with an elevator, and the attachment of the external pterygoid muscle severed. The fibro-cartilage is left behind. After the operation the mouth should be opened at least an inch, and this proceeding must be repeated at frequent intervals so as to prevent the tendency to relapse.

Fixity from Cicatrices.—Cicatrices binding the two jaws together may result from ulcerative or gangrenous stomatitis, mercurialism, necrosis, alveolar abscess, compound fractures, lacerated wounds, and surgical operations upon the face or jaws.

The constricting bands may be limited to the mucous membrane, or may involve the tissues of the cheek, being attached to the bone and forming a firm bond of union between the two jaws. In a few cases the two jaws have been united by a buttress of bone, or the coronoid process has been found glued to the inside of the zygoma as the result of osteoplastic periostitis.

Treatment.—Attempts to stretch the cicatrices by mechanical means are not often successful, and the division of bands inside the mouth are usually futile. Attempts to cover the wounds, made by excision of scars, with flaps of mucous membrane or skin are "difficult, bloody, and disappointing." The best result is

obtained by performing Esmarch's operation. This consists in removing a wedge-shaped piece of the jaw, so as to form a false joint in front of the cicatrix. An incision two inches long is made along the lower border of the jaw in front of the masseter and cicatrices. A triangular wedge of bone is then removed with a narrow-bladed saw or bone forceps. The wedge should measure 1¼ inch below and ¾ inch above, its apex corresponding to an edentulous gap in the alveolar border if possible. Passive movements should be employed early and persisted in until there is no tendency to relapse.

When only one side of the mouth is affected this operation restores the power of mastication as well as that of opening the mouth; when it is necessary to operate on both sides the function of mastication is necessarily lost, although in this respect the patient is no worse off than before the operation.

"THE TREATMENT OF PULPLESS TEETH," by Mr. Storey, read before the National Dental Hospital Students' Society. When treating teeth, the pulps of which have lost their vitality, we have to consider not only their actual condition, but also the state of health and constitution of the patient, for it is evident that the peridental membrane of a healthy person will have a greater amount of vital resistance than that of an anaemic or weak person. The same principles of treatment should be applied to a tooth with a gangrenous pulp as a surgeon would apply to a similar condition in any other part of the body: removing all the putrescent matter and sterilizing with some germicide. Thorough aseptic methods of treatment should be adopted; barbs and nerve extractors should be kept perfectly aseptic, and a new bur should always be used when making a fistulous opening through the alveolus.

Pulpless teeth may be divided into two classes: (1) Those in which the pulps have been removed by devitalization or extirpation; (2) Those in which the pulps are already dead. The treatment of teeth of the first class is usually fairly easy, there being no serious subsequent inflammation, provided proper aseptic precautions have been taken. The rubber-dam should always be adjusted, and the cavity in the tooth enlarged until the pulp cavity is easy of access. The pulp chamber should then be opened up

freely with a rose bur, so that there are no overhanging edges left. If the canal be then syringed out with cold water, it will be found that by passing a Donaldson's bristle, or a nerve extractor, to the apex of the canal, and then twisting it, the pulp can nearly always be removed whole. It is not necessary to ream out the canals, because wherever you can pass a Donaldson it is possible to introduce your filling material; the canal should then be thoroughly cleansed out with chloroform, thoroughly dried and filled. No germicide is needed, provided that all the instruments used were in an aseptic condition, since arsenic, one of the most powerful antiseptics, being used to devitalize the pulp, the tooth is in the most aseptic condition possible. Oxychloride of zinc is perhaps the best filling material for these teeth, especially if the tooth be in front of the mouth, on account of the facility of reaching the canals, because there is very rarely any subsequent trouble from these teeth.

Class 2. Those in which the pulps are already dead are more difficult to treat, and more uncertain when treated, than when the pulp has been devitalized. As a rule the root canals will be found filled with septic matter, which may or may not have made its way through the apical foramen, causing inflammation and an alveolar abscess. The rubber dam having been adjusted, and the decomposed pulp removed by a Donaldson bristle or nerve barbs, the canal should be syringed out with a very strong solution of caustic potash or a solution of permanganate of potash, and then be reamed out as much as possible, to remove the layer of putrefying dentine. Great care should be taken during this operation not to force any septic matter through the apical foramen. The canal must be thoroughly sterilized with bichloride of mercury, 1-500 solution, or peroxide of hydrogen, or a 1 per cent. solution of arsenious acid in glycerine. This should be allowed to stay in the canal, renewing at intervals until the cotton, on being removed, has no smell of putrefaction. The canal must then be thoroughly dried, first by passing cotton soaked in alcohol into it, and then by means of a hot air syringe. Too great stress cannot be laid on the fact that the canal should be thoroughly dried, for it is well known that no micro-organisms can exist without moisture. It should then be filled, and preferably with gutta-percha, as it can at any time be removed, if necessary, by the use of a hot instrument.

There are some dead teeth in which the pulp is shrivelled and free from the results of decomposition. They require no more attention than the removal of the contents of the canals, and filling, taking care that no moisture enters the canal.

The following are some of the drugs used in the treatment of pulpless teeth:—*Bichloride of Mercury* is one of the strongest germicides known, and on account of its rapid, certain, and preservative action, it is indicated when immediate root-filling is practised. In teeth where the dental foramen is large the 1 in 500 solution should be used cautiously, and the 1 in 200 solution should be used only in root canals whose foramina are small, as it contains the minimum dose of the salt in 10 drops.

Arsenious Acid is another most powerful antiseptic. Teeth whose pulps are in a putrefying condition may be treated without removing the putrescent matter in the canals. The pulp cavity is cleaned out, but not the roots, and dressing of carbolic acid is then put in the roots for a few minutes. A piece of card, dipped in oil of cloves, is then taken, and 1-20 of a grain of arsenic is put on and placed face down over the root canal. A metal cap is put on this and the tooth filled permanently. I think this was the first step towards the immediate method.

Carbolic Acid is a very powerful antiseptic, but whilst it subdues offensive odor, it does not completely arrest the activity of free bacteria. It coagulates albumen. It is useful in the treatment of alveolar abscess.

Creosote is not a germicide or disinfectant at all, and therefore it cannot be used instead of carbolic acid or vice versa. It does not coagulate albumen. It forms a stimulating application to suppurating surfaces.

Iodoform as an antiseptic possesses many good qualities, but as a dressing its powerful odor is rather a disadvantage, the odor of the septic gas being covered. It may be dissolved in any of the essential oils, preferably eucalyptus. These together form antiseptics of a powerful and permanent kind, and cause no irritation. Iodoform combined with wax is also used as a permanent filling material, but if once the canal is made thoroughly aseptic no further antiseptics are needed.

Peroxide of Hydrogen is a very useful germicide, especially for front teeth, as, it being a powerful and oxidizing agent, it does

not discolor them. The presence of pus can be determined by the energetic bubbling which occurs when it is used. An ethereal solution of peroxide of hydrogen, 30 vol. strength (with a little alcohol), is very useful, as it does not readily decompose.

The Buffalo Medical Journal for April, 1896.

"DISEASES OF NOSE AND THROAT," reprinted from *Journal of Laryngology, Rhinology and Otology*, reported by H. J. Mulford, M. D. Adenoid Vegetations. In a paper read last year Dr. Y. Arslan, of Padua, states his conclusions as to etiology and treatment of "adenoids," after having seen over four hundred cases. Among 4,080 patients suffering from affections of the nose, throat or ear, 426 had adenoid tumors in the vault. Of these 69 per cent. had symptoms of nasal obstruction, 37 per cent. suffered with tonsilitis or pharyngitis, 59 per cent. had ear complications, of whom 110 were cases of suppurative otitis, and 142 were cases of deafness without suppuration. Of six deaf mutes with adenoids two were benefitted by their removal. Other complications noted were bronchitis, laryngeal spasm, night terrors, stammering, nocturnal enuresis and convulsive attacks. A case of Jacksonian epilepsy, thought to be of central origin, soon disappeared after operation.

Much importance is attributed to heredity and general diseases as causes. In sixty cases noted traces of heredity. Dampness and other causes of secondary importance.

Treatment consists in complete removal. Advisable to operate even when the masses are small. The operation should be completed at one sitting. As regards direct complications, the operation is certain in its benefits; for reflex complications the result is not so positive. Disappearance does not always take place with age, for the growths were found in patients ranging from twenty to forty years.

General narcosis should be employed, otherwise a simple operation is made complicated, long and brutal, especially as the majority of our patients are children, in whom we cannot expect complete docility. Cocain insufficient. Of the anesthetics prefers ethyl bromide; superior to chloroform or ether for short operations. It is rapid and certain in its action, harmless in the dose employed (10 to 20 grammes), and leaves no disagreeable

consequences. Gas might do as well, but not so handy. Collected 4,161 cases of anesthesia by ethyl bromide, in which some unsuccessful cases were noted, but not one death. Has used it 252 times without seeing the least disagreeable symptom. It should be given by what is called the intensive method. Up to fifteen years 10 grammes are enough, above that age the dose may be doubled.

Prognosis good. Nasal obstruction disappears. The healing of suppurating otitis, unless there is extensive caries, is hastened. In deafness without suppuration, nearly always rapid recovery of hearing. In adults, secondary lesions of tympanum and ossicles may be unchanged. In deaf mutes, when young, good results may follow. Often in reflex complications unexpected and brilliant results may be obtained.

"THE CIGARETTE HABIT," by Dr. Mulhall, read before American Laryngological Association, reprinted from same journal. Chewers, smokers and snuff-takers each derive a special satisfaction from the use of tobacco. Cigarette smokers, from habit of inhaling, derive more pleasure than cigar or pipe smokers. The smoke does not penetrate into pulmonary structure beyond the first division of the bronchi. The smoker used to certain degrees of satisfaction does not find it in either a milder or stronger cigarette or in a cigar. The feeling experienced is a pleasurable irritation of the laryngeal and tracheal fibers of pneumogastric nerve. It is a nicotine satisfaction.

Amount of nicotine absorption varies according to the extent of surface, which in inhalers is three times that of noninhalers. Three cigarettes have the nicotine strength of one cigar, and there is no reliable evidence to prove that cigarettes are adulterated with opium or other deleterious drugs. Cigarette smoking is a "deadly" habit, because of its frequency. Its effects are analogous to those of giving a drug in small and frequent doses.

The constitutional effects are those from tobacco in any form, always nicotinism. On the young the results are most pernicious. Locally it may aggravate preexisting trouble, but it rarely originates any disease. There may result a slight hyperemia of the mucosa, or a slight catarrh, with pearly secretion ejected in small pellets with a single slight cough. Once in a while a whistling

rale is heard over the bronchi, but only in the case of deep and excessive inhalers.

Mario, the great tenor, nhaled constantly and between the acts of the opera. Maxwell, the St. Louis murderer, while in prison inhaled forty cigarettes daily, and although he was a nervous wreck his throat did not show signs of disease, as was proven post mortem.

Discussion. Dr. Ingals could not accept the doctrine that tobacco did no harm to the throat, as he had seen pronouuced tracheal cough in inhalers.

Dr. Seiler thought the habit of continual spitting was the real cause of the local trouble, as this led to abnormal dryness of the pharynx.

Dr. Langmaid believed that he could tell by the color of the mucosa of pharynx if a man smoked or not. Cigars have less effect on throat than pipe, owing to the heat in the stem of the latter and to the relatively larger mass of fire in the bowl. Effect of tobacco in any form on the young was especially destructive to power of consecutive thought. As to Mario, it was notorious that he really never exerted his vocal powers more than once a week; the rest of the time he intoned. As a general thing tobacco is very deleterious to finer qualities of the singing voice.

The Therapeutic Gazette for April, 1896.

"On the Pharmacology of Ethyl Bromide," reprinted from *Medical Chronicle*. Hennicke, working under Dreser's direction, found that after white rats had been allowed to inhale air containing 2.3 per cent. of ethyl bromide for twenty-two to thirty minutes, death occurred during the night, although apparent normal recovery had followed the inhalation. Furthermore, a case of ethyl-bromide intoxication had been described by Jendritza. A domestic, eighteen years old, was anesthetized by this substance for tooth-extraction. After the operation recovery quickly followed; neither the dentist nor (after her return) her employers noticed anything amiss; but later in the day she was found unconscious, with fixed, moderately dilated pupils and locked jaws; sensibility was absent, but respiration was easy and the pulse full and regular. Ice was applied to the head, and attempts were made to rouse her, which succeeded after an hour and a half. Speech was not recovered until half an hour later.

Dreser, thinking that these ill-effects were probably due to retention of ethyl bromide in the body, perhaps in connection with the nerve cells, and the formation of decomposition products as a result of the normal metabolic changes occurring in the cells, instituted a series of experiments to determine if possible if this were the case. The most feasible explanation was a saponification of the ethyl bromide by the alkaline tissue-juices. He therefore submitted a 0.25-per-cent. solution of sodium carbonate saturated with ethyl bromide to a temperature of 36° C. for six hours. On examining the product he found a trace of bromide present in an inorganic form. He then submitted a number of rabbits to ethyl-bromide inhalations and examined the urine; in all cases, with one exception, he found a definite quantity of combined bromide present. One of the animals, which was emaciated, died one hour after the commencement of the experiment, and the time therefore was, in all probability, too short for any excretion of bromine to occur. In man also he constantly found bromine in the urine after anesthetizing with ethyl bromide. He therefore regards it as proved that the injurious effects of ethyl-bromide inhalations are due to retention of the compound in the body; this decomposes, resulting in the formation of compounds having a more toxic effect than the ethyl-bromide itself.

Journal of American Medical Association for April, 1896.

"Relapsing Sore Tongue." Mr. Jonathan Hutchinson presented to his post-graduate class a case of the above named affection, as reported in the *Medical Press* for February 26. There were large abraded patches upon the surface of the organ, and these resembled a severe attack of herpes. Herpes of the tongue occurred chiefly along the margin and tip; herpes of the tip was exceedingly common. Sometimes these attacks supervened with such frequency that the patients were scarcely ever free from them. The history of the present case was that the disease had persisted off and on for twenty years. At intervals the tongue would be quite sound, but after some months a relapse would occur. The present attack, which had lasted for four months, was the most severe which the patient could remember. On examination of her teeth, one tooth was seen in which an amalgam stopping had been used. Mr. Hutchinson here remarked that he

entertained great prejudice against amalgam stoppings in teeth, especially in mouths which were sore. In such cases he always insisted upon the amalgam being removed and gold inserted in its place. Dentists, he stated, would not believe that any harm arose from amalgam stoppings. But he was satisfied that in certain conditions some chemic solution of the amalgam took place. Most often the tongue became sore opposite the tooth in which the amalgam was present. Moreover, he had often found that patients could tell by means of a slight metallic taste in their mouths which tooth it was in which the amalgam had been placed. Again, he had often seen cases of sore mouth where all the symptoms had been relieved by replacing the amalgam with gold stopping. The peculiar condition of the patient's mouth was most interesting. In some respects the leucophakia somewhat resembled that seen in smoker's tongue, but more inflammation was present than was usually observed in the latter condition. It was worthy of note that the filiform papillæ had disappeared over a large area. The patient, on being asked if any particular articles of diet caused irritation to her tongue, replied that anything "sharp" did so, and in this connection she instanced vinegar. She also avoided walnuts. Mr. Hutchinson was interested to find that she had herself discovered the irritating effect of walnuts. He pointed out that walnuts were especially harmful in these cases. The old, dry walnuts were possibly not much to be blamed in this connection, but the juice of the rind of the young, moist walnuts was especially irritating. He had seen many cases of sore mouths arising from this cause. Again, such patients should avoid all effervescing waters, and sugar in combination with vegetable acids was very harmful. The remedy for these cases was arsenic.

The International Dental Journal for April, 1896.

"SUGGESTIONS ON THE USE OF ELECTRICAL OSMOSIS IN DENTAL PRACTICE," by Peter Brown, L. D. S., Montreal, Canada. One source of power which is very much in use by dentists to-day is the ordinary 110 lighting circuit; this is a very satisfactory means of running a dental engine or a mallet, but it is far from satisfactory for the treatment under consideration. It is open to quite a few objections. Prominent among them is the unevenness of the

voltage; for the delicate nature of the application in treating sensitive dentine a perfectly even pressure of current is absolutely necessary. This evenness is impossible to obtain on the ordinary light or power circuit, owing to the varying demands made upon the generators from time to time during the day. A difference in potential of five per cent. may not be of much importance to the central station supplying the circuit, but it is of great importance to the patient who is being treated by it. From a large number of experiments made by the writer it has been proved that a difference in pressure of one-fifth of a volt is immediately felt by the patient, and very often it is painfully felt; this shows the necessity of a steady current. Another objection is that there is great danger from wires of a higher pressure falling across, or otherwise coming in contact with, the line supplying the dentist; this has happened more than once, and very often with unpleasant results. The fact of having a resistance in the circuit will not afford protection from accidents of this kind, as the sudden increase of pressure will overcome the resistance in use at the time, and force more current through than is required before additional resistance can be added. The danger of high-pressure circuits may be avoided by reducing the voltage with what is known as a rotary transformer. The type known as the motor-dynamo should not be used, as there is a danger here from leakage from the high-pressure side of the machine to the low-pressure, which is the one to be used in treatment; a one-hundred-and-ten-volt circuit may be reduced by connecting a one-hundred-and-ten-volt motor by means of a belt to a dynamo wound to give a current of twenty volts. The current from this could then be led to the chair, and used without the slightest fear of shock. This plan is, however, open to the objection of varying pressures, as when the voltage of the main line would drop there would be a drop in speed of the motor and a corresponding drop in the voltage of the dynamo. In the writer's experience, the most satisfactory and most reliable source of power for this work is the storage-battery. Where one can obtain the one-hundred-and-ten-volt circuit there is very little or no trouble in operating it; when it is received from the manufacturers it is charged, ready for use, and it may be connected with the one-hundred-and-ten-volt circuit with a sixteen candle-power lamp in series with it for resistance; as in sketch, a double

pole-switch should be put in between the line and the lamp, and always opened when the battery is in use. Here we have a safe and reliable supply of energy always at our command, and always at an even pressure. The battery is kept charged by the lighting circuit, and requires but very little attention. A battery of ten cells should be employed, so as to have a potential of twenty volts; this is all the voltage necessary for this work, and is not very often required. Ten volts will be found quite sufficient for the majority of cases, but it is advisable to have an extra pressure in case of patients who have a very high resistance. Where the direct current is not available the battery can be charged at the nearest lighting station, and one charge should last a dentist for cataphoric treatment at least six months; where it is not desirable to go to the expense of buying a storage battery the ordinary Le Clanche cell of the type used for operating the telephone would answer the purpose very well, or the bichromate of soda cell makes a good battery, but they are more troublesome than the storage cell.

The next thing to consider is the means of reducing the current so that it can be tolerated by the tooth under treatment. This is accomplished by placing a rheostat in series with the battery and patient. The most compact and reliable form of resistance is one called the "Williams dry current-controller." This will give a resistance of one hundred thousand ohms on a ten-volt circuit, thus giving about the one-tenth of a milliampere on the first contact. A milliampere meter is not necessary, but is very useful for purposes of record, and for assuring one that the current is on when the contacts are made. A voltmeter is also very useful for recording the pressure, but both of these instruments can be dispensed with. Where a galvanometer and voltmeter are used, instruments recording in tenths or twentieths should be employed. It is of great importance that the contact with the tooth should be firm, and not removed until the operation is completed, as any break in the circuit when the current is on is accompanied by quite a severe shock; before removing the contact from the tooth the current should be reduced by the rheostat to its zero point. A very good method of obtaining good contact with the tooth is to solder or otherwise attach to a rubber-dam clamp a piece of brass wire. To the end of this wire

a piece of platinum should be soldered, as no metal but platinum should be used in contact with the tooth. In applying the clamp the tooth to which it is to be attached should be insulated by a piece of rubber dam. Take, for instance, a cavity in a central incisor, median approximal; after cutting away the walls sufficiently to gain free access to the cavity, the rubber dam being applied, the cavity should be wiped dry, and lightly swabbed out with a two-per-cent. solution of sulphuric acid. Before applying the acid the adjoining tooth and the edges of the cavity under treatment should be coated with a layer of sandarach or copal varnish; then apply to the cavity a pledget of cotton saturated with a forty-per-cent. solution of cocaine in water. A bicuspid clamp, with wire attached, is then fixed to the first bicuspid, and the end of the wire placed against the cotton. The wire should be bent so as to make a good firm contact with the cotton; of course, it is to be understood here that the clamp is outside the rubber dam and insulated from the tooth by the dam. The positive wire is then attached to the clamp, and the negative placed in the hand of the patient; the current is then turned on slowly until the patient gives evidence that it is being felt. It should be allowed to remain this way for about three minutes, when the current may be increased. In ten minutes the tooth should be insusceptible to pain, although the writer has had cases where forty minutes were necessary to obtund the dentine, but these cases are exceptional. In operating, where there are other fillings in the same tooth, and where these fillings are liable to be touched in preparing the cavity, a coating of varnish should be put on so as to insulate them.

Where it is desirable to remove the pulp, the following method may be used: Prepare the tooth and cavity as before mentioned, but cover the exposed pulp with sticking-plaster or other suitable substance; then place the cotton containing the cocaine in the cavity and apply the current as before. In ten minutes the current may be turned off, and the cotton removed, and the covering taken from the pulp.

Another application may be then placed in the cavity in direct contact with the pulp, and the current again applied. In ten or fifteen minutes the pulp can be removed without any pain, and the root immediately filled. In all these operations the cotton con-

taining the solution should be moistened every four or five minutes, as when the water evaporates the current does not pass through, and time is wasted. A drop of water may be added with a small syringe or applied with a piece of cotton without removing the wire from the cavity.

Attention is directed to the following: Always make a fresh mixture of cocaine; have one grain of cocaine weighed out and divided into six parts. In using it moisten a piece of cotton sufficient to fill the cavity to be treated, and take with this the sixth of the grain of cocaine; have the cotton sufficiently moist to dissolve the salt and you will have good results. Cocaine solutions are not to be relied upon after they are two days old.

Where the skin on the hand is dry or hard and offers high resistance, a piece of cottonoid or lintine should be wet with a solution of common salt and wrapped around the handle in the patient's hand. Or, the negative electrode may be applied to the face or neck, but this is not desirable, as it leaves quite a red spot where the contact was made, owing to the increased circulation at this part.

Care should be taken not to allow the positive wire to touch the skin or the mucous membrane at any point, as, if a connection is made at any other point besides the tooth under treatment, the positive current will enter at this place of contact and lessen the amount of current going through the tooth. In using this treatment without applying the rubber dam, the fingers should not come in contact with the mucous membrane unless the positive electrode has a well-insulated handle.

The Ohio Dental Journal for April, 1896.

"KNICK-KNACKS," by F. E. Battershell, D. D. S., N. Philadelphia, O., read at Tuscarawas Valley Dental Society, January, 1896. *To replace a block of teeth where the pins are broken or have pulled out.*—Take a piece of 22k. gold wire, twelve to fifteen gauge, cut two bits of sufficient length to reach across the thickness of the approximal surfaces of the block and project into the rubber. Rivet-head both ends. With fine wheel cut circular notches on either side of the block large enough to allow the pin to pass through between it and adjoining block into space for rubber. Cut these notches near or into border of tooth; and when

the work is completed, and the clinching rivet-head finished it will resemble a neat filling of gold. Also the block will be more secure than with the original pins. Sample pinless blocks may be thus used.

Electricity for tooth-ache.—Whether from inflammation of the pulps or of the peridental membrane, tooth-ache may be arrested at any period before transudation of the leucocytes has reached the point of abscess, by the application of a mild electric current for from ten to twenty minutes. For this purpose the positive current should be divided, one wire fastened to the forceps and the other, with the negative put into the hands of the patient. Now begin with the mildest current and increase until the sensation begins to be unpleasant, then diminish a little, and apply forceps to the tooth. Protect lips by slipping a rubber nipple over beak of forceps. Increase current again as much as can be comfortably tolerated, and hold until pain altogether subsides, which is about ten minutes. Remove for a brief space, and apply a second time for five minutes; this to counteract the reflux in the capillaries. Watched and waited minutes are long, but on this account do not narrow the prescribed time. After placing forceps with right hand, change to left, and resting forearm on arm rest, stand at rear of patient, otherwise the operator may experience some inconvenience. These directions carefully followed will quiet tooth-ache and complaint.

Excavators vs. burs.—The present tendency seems to incline towards the disuse of excavators and more and more in favor of burs. Some operators going so far as to depend altogether upon the engine in the preparation of cavities for filling. This new habit we think is reprehensible, for several reasons: first, excavators remove carious material more rapidly and thoroughly. After burring out a cavity as carefully as can be done, one does not *know* the precise condition without having examined the walls with an excavator. Such search often reveals a branching cavity sometimes as large or even larger than the first; and always discovers carious material beyond the range of engine drills. The rotating process of drilling is so unlike the sweeping effect of cutting with the excavator, that what is run over with the engine drill, is easily turned out and swept away by the excavator. Another valuable point of difference is, that the excavator can al-

ways be sharpened and kept sharp, while the bur is becoming progressively duller; consequently when much used, instead of cutting it only rubs. To the many well-known forms, the office forge has supplied an additional one for our use, which others may find serviceable. This form reaches those indentations under the grinding surface of molars and bicuspids, so difficult of access. It is shaped like the letter U; one stem of which, slightly curved and continued, represents the handle. Three or four sizes of this instrument, in spoon shape and hoe shape, will enable the operator to do easily what would be very difficult, and ofttimes undone, with ordinary forms. Again, the engine hand-piece, encumbered by the heavy coil, is clumsy beside the free and slender excavator. Therefore the touch of the excavator is much more sensitive, which is a very significant quality when approaching the nerve, or when working frail walls. The excavator ought not to be discarded. It once was young, but is now old; yet it has never fussed, or grumbled, or wabbled, or refused to work when treated respectfully.

"Treatment of Pulpless Teeth," by Dr. J. J. Grout, Rock Rapids, Iowa, read before Northern Iowa Dental Society, September, 1895. When I have a pulp to destroy, I use a paste of arsenic and creosote, applying from 1-60 to to 1-120th of a grain, according to the size of the pulp and the ability of the patient to present himself for treatment. Where practicable and possible I apply tannin and glycerin after the pulp is devitalized and leave it from six to eight days, when I extract the pulp entire with a broach, cleanse the root with pyrozone and campho-phenique, thoroughly dry, moisten the canals slightly with eucalyptus oil, pump chloro-percha to the ends of the roots and follow with gutta-percha points. Where the pulp is putrescent, I follow a little different course of treatment. After removing all septic matter possible with pyrozone, and drying, I introduce on a shred of cotton carbolic acid 1 part, oil cloves 2 parts, oil cassia 3 parts; seal this in with Gilbert's stopping, leaving it from two to ten days as indicated, then fill as above described.

Judgment should be used in all cases, as to amount of paste necessary, length of time it should be left in the tooth, what medicament should be used later, general conditions of the tooth,

and the patient's ability to present himself when needed, etc. But in each and every step be conscientious and thorough. I always use the dam when possible. I also use root drills, burs and sulfuric acid to open up the root canals, when in my judgment they are indicated. No arbitrary set of rules can be laid down for the treatment of all cases. My advice is: Use as little medicine and as few treatments as are consistent with good and thorough work.

"ABSCESS OF THE ANTRUM," by E. D. Brower, D. D. S., Lemars, Iowa, read before same society. *Causes.*—We find a number of authors who claim that the majority of inflammatory diseases of the lining of the maxillary sinus are a continuation of the inflammation of the nasal mucous membrane. This view is not coincided with by others. Dr. Wm. Carr, of New York, in a paper read before the American Medical Association in 1889, stated that of the cases that have been under his immediate observation, fully eighty per cent. were caused either directly or indirectly by diseased teeth.

When we consider the anatomical relation of the teeth to the antrum, that they are separated only by a thin layer of bone, and frequently a root protrudes into the antrum, covered only by the membrane; when we consider the vascularity of the alveolar process, and the frequent pathological changes of the teeth and their alveoli, these changes being pericementitis, alveolar abscess and necrosis, we can easily comprehend why diseased teeth cause such a large percentage of antral diseases.

In my own experience, in every case of antral inflammation or abscess I have found an opening from some tooth into the antrum, and I am satisfied in my own mind that all the cases that I have had under my care have been caused by diseased teeth.

Symptoms.—There is a dull aching pain in the cheek, with heat, redness, and fullness of the soft parts externally. There may at once be purulent discharge from the nose, but the swelling of the mucous membrane soon closes the sinus. There is now throbbing pain, rigors, fever, expansion of the jaw, elevation of the malar bone, projection of the molar teeth, depression of the arch of the palate bone; and the finger seldom fails to detect the fluctuation.

Treatment.—Here again we have a variety of opinions and some very elaborate descriptions of methods of opening into the antrum.

In all the cases that I have had there has been a sore tooth to extract. In looking over my record of cases I find I have had openings from the first bicuspid to the third molar. If there is no diseased tooth, extract the first molar. Make an opening into the antrum large enough to use a syringe freely. Syringe first with warm water.

I find in my first cases I used a solution of carbolic acid after the first cleansing with warm water, later I used listerine instead of carbolic acid. Again, the past few years I have used peroxid of hydrogen in various degrees of strength, followed by diluted listerine. I have found some cases of recent origin where the extraction of a tooth, with one or more thorough washings, was sufficient.

In reviewing my record of cases since peroxid of hydrogen has come into general use, I find that I have used it in almost every case after syringing with warm water. There is one thing that must be observed. A free opening must always be had before using peroxid of hydrogen. If the case at hand has a copious discharge of pus the antrum should be syringed daily; but if not, I would at first see the patient twice a week, then once a week until complete recovery. In quite a number of cases that I have had the patient lived some distance in the country; I provided the patient with a syringe and a solution with instructions how to use.

Pacific Stomatological Gazette for April, 1896.

"EXTRACTION AS RELATED TO ORTHODONTIA," by C. L. Goddard, A. M., D. D. S., San Francisco, read before So. Cal. Odontological Society, Oct. 1, 1895. As the assertion is sometimes made that it is never necessary to extract a tooth in order to correct an irregularity, it will be well for us to inquire for a few minutes into the causes of certain irregularities.

I will direct your attention to two classes only: first, superior protrusion, sometimes accompanied by a V-shaped or pointed arch; and, second, prominent cuspids with depressed laterals.

The origin of both of these irregularities may be the same—

that is, a small jaw inherited from one parent, or other ancestor, and large teeth from the other. In this case, starting from the first permanent molars as fixed abutments of the arch, if the teeth anterior to these arrange themselves in a normal line as regards each other, they will form an arch larger than that section of the jaw which supports them, and the alveolar process growing around them will conform to their position, forming thus a case of superior protrusion. If the teeth anterior to the first permanent molars do not arrange themselves in a normal line as regards each other, the incisors may erupt in normal positions, as also the bicuspids, thus taking up all or nearly all the room, so that the cuspids erupt outside of the arch, and in doing so depress the laterals.

Another cause may produce the same result, even when the teeth are of the normal size for the jaw, namely, premature extraction of the second deciduous molars. When this occurs the first permanent molars crowd forward. We may remark, in passing, that for some unexplained cause the posterior teeth tend to move forward when there is room for them to do so. I have seen two cases where the first permanent molar was in contact with the cuspid.

If, then, the second deciduous molars have been extracted prematurely, and the first permanent molars have moved forward so as to occupy part of the space belonging to the second bicuspid, not enough space will be left in the arch forward of that point for the teeth which are to occupy it, and the result will be too small an arch for normal teeth. While in the first case mentioned the teeth were too large for the jaw, the effect will be the same. The first permanent molars standing as firm abutments, often reinforced by this time by the second permanent molars, the teeth anterior to them must erupt so as to form too large an arch, producing either superior protrusion or V-shaped arch, or must crowd the cuspids out of line.

Superior protrusion, V-shaped arch and "prominent cuspids with depressed laterals" may also be due to other causes, such as thumb-sucking, lack of development of the intermaxillary bone, etc.; but we will consider now only the two causes mentioned.

In the case of superior protrusion the anterior teeth must be moved back, and in the other case the cuspids must be moved

backward and the laterals forward. In either case, owing to the causes mentioned, it is necessary to make room; and, in my opinion, the only way to make room is by extraction of one of the bicuspids or of a first permanent molar on each side, preferably the first bicuspid, unless one of the other teeth is very defective from caries. If all the room thus gained is needed, an appliance may be used which will move back the anterior teeth in the first case (or the cuspids only in the second case) without disturbing the teeth posterior to the space.

In case only part of the space is needed, an appliance may be used which will move the back teeth forward, while it also moves the front teeth backward, and thus fill up all the space.

As the second class of cases, "prominent cuspids and depressed laterals," and, also, the pointed or V-shaped arch, may be also due to other causes, let us consider the subject further. *Etiology.*—This common (form of) irregularity may be (*a*) constitutional, due to lack of development of the intermaxillary bone; (*b*) inherited, large teeth and small jaws; (*c*) acquired, from premature extraction of the deciduous cuspids; (*d*) from premature extraction of second deciduous molar and crowding forward of first permanent molar, leaving less than the normal room for bicuspids and cuspids.

Treatment.—To make room for proper arrangement of the teeth in this class, it is generally necessary to expand the arch or extract one or more teeth.

Unless the arch will admit of expansion to advantage, extraction is better.

If expansion should make the arch too large, or the anterior teeth too prominent, extract. If the superior maxilla itself is so narrow that expansion would make the bicuspids and molars slant outwards too much, extract. If caries are prevalent, extract.

In favor of expansion: The full number of teeth are retained, the pain of extraction is obviated, and a narrow arch is widened and made to correspond with the other features.

In favor of extraction: Room is gained more easily; the treatment is simplified, as there are fewer teeth to be moved; the teeth are retained in their new position more easily, because, if no teeth are extracted, the same cause that produced the irregularity tends to reproduce it, while if room is made by extraction the action

of the lips and tongue tend to move the teeth into the normal arch.

With expansion nature works against us. After extraction nature works with us. In many cases no other treatment than extraction is necessary.

Having decided upon extraction in any case under consideration, the choice lies between a lateral incisor and some tooth posterior to the cuspid. *The cuspid should never be extracted*, as, on account of its long root and prominent position, its loss causes a depression of the corners of the lip and wing of the nose that can never be remedied.

The choice between a lateral incisor and some tooth posterior to the cuspid depends on the position of the apex of the root of the cuspid, and also of the lateral.

If the apex of the root of the cuspid is so situated that the crown slants away from the median line, or will do so after being moved into its normal position, the extraction of one or both laterals is admissible.

If a lateral is unusually far back of the normal line and the apex of the root also, when the tooth is moved forward till the cutting edge is in line with the centrals, the neck of the tooth will be back of its proper position—that is, the tooth will have an unnatural slant forward. This is not of as much importance as the apices of the roots of the cuspids, for the roots may be moved forward by Case's method, but should be taken into consideration in connection with the other.

In very rare cases a central incisor may be extracted to gain room—that is, if very badly decayed; if an incurable abscess exists, or if the root only remains and cannot be crowned to advantage.

In the lower arch an incisor may be extracted to advantage in many cases, as the four are so nearly alike in appearance that the absence of one is not noticed.

If, in a given case, it seems best to extract some tooth posterior to the cuspid, the choice will lie between a bicuspid and the first molar.

If the bicuspids and first molar are equally sound, extract the first bicuspid. This will leave two teeth for anchorage in retracting a cuspid; or, if the second molar is erupted far enough,

three teeth may be utilized. Very secure anchorage is necessary, for the cuspid is the most difficult tooth to move, and oftentimes the two anchor teeth will move faster than the cuspid.

In some cases the cuspid needs to be moved back but little, then the second bicuspid only need be used for anchorage and the two teeth moved toward each other to fill up the space. The molar will follow, owing to the tendency of the posterior teeth to move forward.

If, however, the second bicuspid or first molar is so defective as not to be easily preserved by filling, the defective tooth should be extracted. This, however, will complicate the case, as more teeth are left to be moved, and fewer for anchorage.

Fig. 7 shows the writer's modification of Prof. Guilford's appliance for retracting the cuspids On each cuspid is cemented a band with a hook on each side. On each second bicuspid or first molar is cemented a band with a tube on each side. The posterior end of the tube is filed so as to serve as a hook.

If the bands are fitted to both bicuspid and molar, and soldered together, the anchorage is increased and the tendency of the teeth to tip forward is lessened.

A rubber band stretched from one hook to the other on both buccal and lingual surfaces gives the power, and the cuspid moves back. After the cuspid is moved in position it can be retained by substituting fine platinum or silver suture wire for the rubber bands. The buccal tubes may be utilized for inserting the ends of a wire bow which passes in front of the incisors. Rubber bands from this bow will draw the lateral incisors forward. An inner bow can be placed in the lingual tubes and utilized for drawing central incisors backward, or rotating them, as is often necessary in such cases.

If either cuspid needs rotating, a rubber band will be needed on one side of the tooth only, and the hook may be so placed on the band that the tooth will be rotated as it is drawn back.

Prof. Angle advises the use of the drag-screw for retracting cuspids. By soldering a long tube to two bands which are cemented to two teeth, and extending the drag-screw through this tube, he reduces to a minimum the possibility of the teeth tilting. This appliance is very effective. The position in which the hook is attached to the cuspid band will depend on whether it should be rotated or not in retraction.

After the cuspids are moved to their new position the same appliance may remain as a retainer. It will be found that a cuspid moved into its proper place, when room has been made by extraction, will need less retention than any other tooth.

Greater anchorage can be obtained by a plate, for it impinges upon the anterior alveolar ridge and incisor teeth as well as upon the posterior teeth. Its use is especially advantageous when a second bicuspid or first molar has been extracted, for then one or two teeth must be moved before the cuspid. A wire or clasp should encircle the posterior tooth for greater anchorage.

When room has been gained by extraction, as indicated in these cases, it is not necessary to wear a retaining appliance for as long a time as when room has been gained otherwise.

Retaining appliances should be of such construction that they may be cemented to the teeth, and connecting parts should be of such slender construction that the teeth can easily be kept clean. In many cases the same appliance that was used for regulating may be used for retention. If a screw has been used, the nut may be cemented in a fixed position. If piano wire has been used, non-elastic wire may be substituted. If ligatures or rubber bands have been used, they may in many cases be replaced by suture wire of silver, platinum or gold.

As was hinted in one part of this paper, expansion of the arch may be best in some cases of V-shaped arch, and also in some cases of prominent cuspids and depressed laterals, but a study of such cases would prolong this paper beyond endurance.

Zahnaerztliches Wochenblatt for Feb. 29, 1896.

"THE APPLICATION OF SULPHURIC ACID TO DEVITALIZED PULPS," by Dr. Albert H. Mebes, of Berlin, translated by Dr. B. J. Cigrand. It is an undisputed fact that yearly thousands of teeth are allowed to waste away which certainly could have been preserved, had their roots been sufficiently sterilized. That there are in America and also in Europe practitioners who assert that they are able to thoroughly fill all root-canals is well known, but the fact remains that the test root-canal fillings of these gentlemen show great deficiency and defectiveness.

Concerning the treatment of the six anterior teeth the matter is very simple, quite different in bicuspids presenting two roots;

and how frequently it occurs in tri-rooted molars—both superior and inferior—that, notwithstanding all possible effort and caution, the entrance to the anterior buccal canals is sought in vain, and consequently they are not sterilized or filled. If no failure results it is most fortunate and the operator is particularly lucky, but in most cases trouble immediately sets in and a short time after the tooth is subjected to the forceps.

Among the remedies which are indicated and which give favorable results in difficult cases I mention the employment of sulphuric acid. To use a 50 per cent. solution of sulphuric acid on tooth substance appears at first thought most dangerous, nevertheless such is not the case, as I will briefly show.

Dr. Callahan, of Cincinnati (U. S. A.), was the first to suggest the employment of sulphuric acid (50 per cent. sol.) in the treatment of root-canals, and subsequent to his experiments many other dentists in America and Europe followed the treatment with good results. I have also conducted tests along this line and feel it my duty to further increase the cycle of the Callahan method.

Taking for example an inferior molar whose pulp has become devitalized, either through medication or natural causes, the following would be the method of procedure, if employing sulphuric acid:—Subsequent to placing the rubber-dam the root-canals are thoroughly opened; then twist a small amount of cotton about a pliable nerve-canal broach, dip the latter in a 40 or 50 per cent. solution of sulphuric acid and apply it directly over the opening of the devitalized pulp. As a result of the evaporation of the water the dead pulp becomes ridged and shrunken, in consequence of which its extraction from the canal becomes a comparatively easy task. Now drop on the opening of each canal a drop of the acid solution, and in order that the acid reach the desired points, it is advisable to counter-sink the openings by means of a rose bur. With a Donaldson nerve broach, properly bent, slowly and cautiously inserted, giving a pumping movement to it, the canal is readily opened. The acid by this process is either driven before the broach or with it, and in either case destroys all septic matter extant. Keep up the pumping movement, gradually sinking the broach deeper into the canal, until the patient experiences slight pain. This method can be employed to open and cleanse all canals which are difficult of access.

Generally the solution while in the canal becomes permeated with the debris of the canal, often closing the opening of the latter. It is then recommended that a weak solution of carbolic acid be injected, and the acids thus coming in contact with each other cause a decided effervescence, dispersing upon the rubber-dam the contents of the canals; while the walls of the canals are covered with a deposit of Natrium bicarbonicum, which is readily removed by spurting distilled water or alcohol into the canal, thus leaving perfectly cleansed root-canals.

Ash & Sons' Quarterly Circular for March, 1896.

"NOTE ON TWO CASES OF LATE ERUPTION," by Dr. Maurice Roy, translated from *L'Odontologie*. The first case relates to a man 40 years of age, who possessed excellent and well-placed teeth up to the age of 38; his left upper temporary canine, however, maintaining its place, the permanent one did not come through. Two years ago this temporary canine became loose and was lost, and the permanent canine made its appearance; but it made its way inside the arch in such a manner that the lateral incisor was pushed forward and caused great annoyance to the patient. In the occlusion of the mouth the free edge of this tooth rested lightly upon the lower lip. He decided to have the tooth removed in order that this deformity might not become acute. He applied to one of our colleagues, who, after many efforts, was unable to extract the tooth. Some time after he came to me, and I succeeded in removing it; but only after many attempts and by employing considerable force was I able to complete the operation. The root of this tooth was enormous; it presented considerable exostosis; this, added to the situation of the tooth against the palatine face of the lateral incisor, explained the difficulty of the extraction.

The second case concerns a lady of 56, in whose mouth the right upper temporary canine had remained for a long time, and the permanent one had not been erupted. About seventeen years ago this lady lost her temporary tooth at the same time that she lost some others, and she had an artificial denture made. In 1889 I extracted some teeth and roots for her, and made her a new piece; she had then only the two last molars remaining, and there was nothing abnormal about her mouth. A few months back

this lady called to consult me respecting something she had noticed in her palatine vault. At the interior part there could be seen a little hard white mass, which pierced the gum; it was not mobile, and at the first moment I was inclined to think that it was a sequestrum, without, however, being able to explain the cause to myself. As there was nothing of an urgent nature about it, I requested the patient to visit me later on in order that I might follow the progress of this strange thing. She came again two months afterwards; the hard white mass which I had observed was a little more visible, and on exploring carefully under the mucous membrane, I was able to recognize a tooth. After anæsthetising with cocaine, I was enabled to remove it; but, on account of its placement, not without difficulty. It lay transversely, the point of the crown near the median line of the palate, the point of the root outwards and rather upwards.

I did not take an impression of the first case, and I have not kept the tooth; but I am able to show you the impression of the mouth and the tooth of the second case; this tooth exhibits slight erosion, and the root is somewhat exostosed upon its anterior surface.

Beyond this, I deem it my duty to call attention to the frequency of exostosis in cases of vicious eruption; this is a little point in pathology which, I believe, has not yet been noted. This exostosis, the pathogeny of which is easily explained by the prolonged irritation of the periosteum, presents itself in these cases in nearly an invariable manner, and it is very frequently observed upon the wisdom teeth, the eruption of which is so difficult. One is able even to see this exostosis upon the neighboring teeth; I was thus able in the case of a patient for whom I had to remove the second molar and the wisdom tooth, both healthy, to remedy some grave accidents due to the eruption of the latter tooth. I found the roots of the wisdom tooth cemented together and with considerable exostosis, and the roots of the second molar equally exostosed, but with this peculiarity: the posterior root immediately in contact with the wisdom tooth presented a cemental hypertrophy which was very marked, while the anterior root, on the contrary, was only to a slight degree affected with it; this then was an evident proof, if it had been needed, of the cause of this hyperplasia.

"THE ROENTGEN X RAYS." At the monthly meeting of the Odontological Society of Great Britain, held on Monday evening, April 13th, Mr. Chas. A. Clark, of Forest Hill, London, exhibited a photograph of a second lower molar in the mouth, taken by the Roentgen X Rays, which clearly shows (1) the crown and roots, (2) the enamel and its junction with the dentine, (3) the pulp. We think Mr. Clark is to be congratulated upon his success in this matter, for his experiment proves beyond a doubt that the Roentgen X Rays are likely to be as useful in Dental Surgery as they promise to be in General Surgery.

"ON THE USE OF ANTISEPTICS IN DENTAL WORK," by C. Edward Wallis, M. R. C. S., L. R. C. P. In writing on this subject one is at the outset confronted with the difficulty of deciding how much should be said and how much left unsaid, and in this article it is my desire to give what I conceive to be the chief indications as required by the ordinary practitioner, to prevent the conveyance of disease from one patient to another, by the imperfect cleansing and sterilizing of instruments and other dental appliances.

Of the importance of the matter I imagine no one brought up in the modern methods of surgery can have any doubt, and especially indeed when one calls to mind the fact that in the mouths of even healthy people the organisms of tuberculosis, diphtheria, suppuration, and many other diseases are found, which, if introduced into the mouths of others whose phagocytic power is deficient, will, in the presence of any wounds or abrasions, be extremely likely to inoculate the recipient with the disease of which they are the respective cause.

We have all of us seen syphilitic lesions in various parts of the lips and oral cavity in the form of chancres, mucous patches, ulcers, gummata, and so on, the discharges from which have been shown to be contagious in the highest degree, and yet possibly there are many who, not recognizing either the lesions themselves or their extremely contagious character, would regard it as sufficient simply to wash their instruments in cold water, while others, a little more careful, would regard their momentary immersion in boiling water as being a sufficient safeguard. This latter proceeding has been shown to be well-nigh useless, owing to the fact

that many of the most prevalent micro-organisms are only destroyed after protracted boiling in water, an example of this great power of resistance being furnished by the bacilli of tuberculosis, which are not destroyed till they have been submitted to the action of boiling water for a prolonged period.

In the face, therefore, of the above facts, it behooves everyone to take the utmost care in the matter of cleansing and sterilizing, and to pay special attention to those instruments which are most likely to harbor septic material in their interstices, such as lancets, forceps, rubber-dam appliances, mouth props, the mouth tubes of saliva ejectors, while above all not forgetting the mouth mirror.

The next point to decide on is an antiseptic solution which must be absolutely reliable, readily made and inexpensive; and in the selection of this we cannot do better than follow the teaching of Sir Joseph Lister, who, after many years of research, decided that in a solution of carbolic acid in water, in the proportion of one in twenty, we could place the utmost reliance, since the investigations of Crookshank have shown that all the organisms of which we need have any fear are destroyed after a few minutes' immersion in a solution of this strength, and that after its careful use we run no risk of disseminating such terrible scourges as tuberculosis and syphilis.

Dental Practitioner and Advertiser for April, 1896.

"ARTIFICIAL DENTURES," editorial. Clearness of enunciation in speech is very largely dependent upon the development of the alveolus, and this in turn depends upon the development of the teeth. No one with a narrow contracted arch, or with an undeveloped or over-developed alveolus, will have clear speech. When the teeth are lost, and the alveolus has been absorbed because it no longer has any function to subserve, all distinctness of articulation is lost. It then becomes the duty of the dentist to attempt the restoration, not only of the teeth, but of the alveolus also. And yet how many take this latter supplemental action into account? They use great care and exercise artistic skill in getting the artificial teeth into proper position, and perhaps carefully restore the contour of the facial muscles, but give scarce a thought to the lost lingual portions of the alveolus, upon which distinct speech depends.

The enunciation of most of the sounds of articulate speech must rely upon the ability to properly control the emission of air in the incisor region. This is accomplished by allowing the tip of the tongue just to make contact with the palatal arch immediately behind the incisor teeth. The delicacy of the adjustment of the tongue to this space makes the difference between clear and clumsy speech. If the teeth shall have been lost and the alveolus absorbed, in most cases the tongue will fall short of contact, and inability to pronounce certain sounds will be the result. If an artificial plate is now adjusted which shall exactly restore the alveolus that was lost, and the teeth be in their proper position, perfect speech is restored. If the plate immediately back of the incisors, just where the tongue comes in contact with the arch, be too thick, the speech will be the same. If not thick enough—the most common fault—there will be a constant hissing and sibillation in articulation. The tongue does not properly close the aperture. The clearness of enunciation where an artificial denture is worn depends, very largely at least, upon the adjustment of material just where the lingual alveolar ridge existed, immediately at the base of the upper incisor teeth.

The Dental Review for April, 1896.

"A Few Thoughts on the Essentials of Soldering," by H. J. Goslee, D. D. S., Chicago, read before the same society. To begin with, the essential elements of soldering are: The thorough removal of all oxidation from the surfaces to be united; contact or apposition of the parts; the use of a *flux* upon the surfaces of both metal and solder, which permits the latter to flow readily, and of union between them, by preventing oxidation; and the heating up of the object to be soldered—whether it be in an investment or not—to or near the degree of heat required to fuse the solder, before any attempt is made to do so.

Now the definition of solder, as we understand it, is a combination of metals which fuse lower than the highest fusing component part; zinc being mostly used in the ordinary gold solders as the baser incorporate, by which the fusing point of the mass is reduced and regulated, imparting also increased properties of flowing. Consequently, a twenty carat solder, for instance, will fuse lower than plate of the same carat, otherwise it would not be

a solder; and yet there are some, I dare say, who would not think of using a twenty-two carat solder to unite plate of the same carat, while it may, of course, be done with perfect ease, and in cases which require two or three solderings to good advantage, as such would in that case facilitate matters by lessening the possibility of unsoldering parts already attached, during the subjection of same to subsequent soldering, enabling you, at the same time, to accomplish a desired result by using as high a carat as possible in finishing.

Perhaps paramount among the difficulties encountered in or connected with the soldering of plate or crown and bridge work is the apparent unavoidable fracturing of porcelain facings, and while it now seems probable that the coming work of this kind may, perhaps, be done without subjecting the porcelain to the heat of soldering, "but by the method already in vogue, apparently to some considerable extent, of simply soldering the backings which have previously been perfectly fitted and adapted, in their respective or relative positions, and subsequently retaining the facings by means of cementing and riveting;" it is, at the same time, perhaps just as well to consider for a moment the *cause* of the frequent checking of facings, for, in my present opinion, which is based upon my own observation and experience only, there seems to me to be no imperative reason why it cannot be avoided in no limited percentage of cases; though we are aware at the same time that some of our best men in this line do not hesitate to make the broad assertion, "that few facings are ever entirely devoid of checks after soldering," and contend that if the same at the time are not noticeable to the eye, they are conspicuously so when the facing is subjected to the *lens*, or that they materialize and appear in time.

It must be remembered that a porcelain facing in itself presents two substances, the porcelain feldspar, and the platinum pins, each of which is affected very differently by the great amount of heat necessary to solder; the former absorbing and retaining the heat for a considerable length of time, and the latter, while absorbing it readily, gives it off or cools with equal rapidity; consequently, when a tooth, properly backed, is to be soldered, too much care cannot be exercised in cautiously and evenly distributing the heat from the beginning of its application, so that

the porcelain which is usually farthest away and covered or protected by an investment material, receives it in equal proportion simultaneously with the metal; otherwise the metal receiving the bulk of the heat first rapidly through the medium of the platinum pins conducts it to the porcelain before the latter is correspondingly and sufficiently heated to avoid *uneven expansion*, and, as a result, the characteristics of the substances considered, what would be more natural than the occurrence of a fracture in the more brittle and friable material, usually across the center of the facing, on a line with the pins?

Acknowledging this then to be one and perhaps the main cause, it is evident and conclusive that it can be avoided by so regulating the application of the heat that the investment, which is usually a poor conductor, receives the most of it, or entirely so, until the whole shall have reached a high degree, which having come from the outside, as it were, must have been equally and evenly distributed; and furthermore, as a precautionary means, the platinum pins should always be cut off as close as possible to the backing, leaving only enough remaining to retain same in its proper relation to the facing by splitting or riveting them; for if left standing out straight or bent over upon the backing, they must necessarily by virtue of their prominence receive the bulk of the heat from the blowpipe as soon as the flame is directed upon the backing.

Great care is also necessary in the preparation of a facing to receive its backing, and in the perfect adaption of the backing to the same, that no overhanging edges of the metal be left upon the porcelain, as this will invariably result in a fracture or numerous small checks occurring along the edges of the facing so neglected and due to the impingement upon the porcelain, occasioned by the contraction of the solder upon the backing in cooling; and in this respect, and of equal importance of course, is the arrangement of the teeth in alignment, that sufficient space be left between them to allow for the taking place of this same physical change in the metal upon cooling; and it may also be well to add that after the soldering is completed the utmost care should be exercised in excluding any draught of air which may have a tendency to prevent the contraction of porcelain and metal taking place gradually and at the same time, and no attempt should of

course be made to remove the case from the investment until this may have taken place and both are cool.

The extravagant and injudicious use of *borax* is another cause of numerous cracked facings, as it fuses lower than solder, and owing to the expansion of the average investment material it is thereby permitted to run out over the edges of the backing upon the surfaces of the porcelain and usually or invariably results in fracturing the latter by giving off its heat and contracting much sooner.

The use of perhaps the most commonly used investment material, consisting of pumice stone in conjunction with plaster of Paris, presents, I believe, very objectionable features and of sufficient detriment, especially regarding its use in connection with porcelain facings, as to cause it to be avoided; for, to begin with, it is a poor conductor of heat, expands very readily and unless protected by a ferrule of metal, or by wiring tightly together, or by being much larger in bulk than either desirous or necessary, it invariably cracks open or falls apart, rendering liable the exposure of the heated facing to the air, which of course results in fracturing same; and again the pumice stone, like borax, fuses lower than the ordinary solders, and if in contact with adheres to the surface of the teeth, and in cooling and contracting much sooner renders liable the presentation of the same undesired result.

Believing then, after careful consideration and numerous experiments, that in these we can safely concede the maximum number of probable *causes* of this particular *bugbear*, I experience no hesitancy in maintaining that if the proper care, skill and judgment be exercised there is no necessity, and indeed very little excuse, for the fracturing of porcelain facings during the process of soldering, and consequently can see but little advantage or merit in the method hereinbefore referred to, "of simply soldering the backings and subsequently retaining the facings by means of cementing and riveting," and likewise feel no hesitancy in proclaiming it to be more of a *fad* than anything else, and certainly possessing more disadvantages than advantages; however, confining myself to the—let me say—conscientious expressions regarding the unnecessary cracking of facings in soldering; we can in this respect refer to the similar assertions of no less an

authority than Dr. E. T. Starr, of Philadelphia, a gentleman who has devoted almost a lifetime to the study of the characteristics of the materials used, and to the manufacture of porcelain teeth; and morever to corroborate these assertions, let us think why it is that so few facings are cracked in the construction of *porcelain work* where they are subjected to the heat of both the high and low fusing bodies. True, they are occasionally fractured even then, but very seldom and the ratio is certainly much less as compared with metal work.

Is it not because the porcelain and metal being inclosed in the muffle receive the heat at the same time, expand and contract under its influence to gether, that there are no overhanging edges of metal backings to impinge, and that there is no borax or low fusing investment materials to interfere?

And now a few words regarding the appearance of these cracks or fractures occurring or presenting themselves at some later period, as previously referred to, and contended by some. It seems very evident to me that when they do occur, and I regret to say that it is only too often, that it is due, *not* to the fracture having been there since the tooth was subjected to the soldering, but more likely to negligent or poor adaptation of its backing, rendering in itself no protection whatever to the facing from the continued strain brought to bear upon it in the force of mastication, and I think it is safe to say that there are not one-fourth of the facings used, whether they be on plates or crowns or bridges, that are properly protected to withstand the ravages of this powerful force.

To see a facing badly checked or entirely broken off of a crown or bridge after same has been worn for some little time is by no means an uncommon occurrence with most of us, but to attribute this to the belief that it was due to the soldering, and has been present though perhaps not visible since that time, seems hardly consistent, when, as a usual thing, all we have to do is to examine the broken facing and we will almost invariably see that that facing has had little or no protection along the cutting edge, and it is perhaps reasonable to infer that it lasted quite as long as could well be expected under the circumstances; for when we stop to consider the amount of force to which a facing is and must be subjected in masticating, and remember that it is

retained by means of its attachment in a position both rigid and unyielding to the slightest extent, how can we overlook so important an essential as providing for the proper protection of them against any possible unnecessary strain, when the same can be accomplished with very little more work, and much more gratifying results.

I am of the opinion that crown and bridge work would in the long run prove less laborious, and infinitely more successful and satisfactory to both dentist and patient, if all were inclined to make an endeavor to remedy this evil, and regard this part of the operation as almost next in importance to the fit and adaptation of a crown to the root.

To accomplish this the facing should first be ground to assume its proper position and fit accurately, after which the lingual portion of the cutting edge should be ground so as to produce a sharp but smooth angle along the edge, the bevel extending to about one-half the distance to the pins; then the lateral sides should be slightly ground to give a smooth marginal edge to which the backing may be finished nicely and without danger of overhanging edges. Preferably use pure gold from twenty-nine to thirty gauge, and after burnishing to fit nicely and leaving a small margin of surplus around the edges, it then should be removed and reenforced with plate or high carat solder to desired thickness. After it is sufficiently reenforced to insure strength, replaced upon tooth and riveted, the smooth marginal edges will enable it to be finished down to a fine line, leaving a joint when finished so close as to render it practically impervious, but in dressing it down along the cutting edge the file should be passed on a line parallel with the face of the tooth, which, as can readily be seen, will leave the thickness of the metal covering and protecting this edge, and which can be left of a uniform and desired thickness to receive the force of mastication and relieve the porcelain of all strain.

Another great annoyance along the line of soldering, and of not uncommon occurrence, is the tendency of solder to *ball up*—and which is invariably due to the endeavor to cause it to flow before the parts to be united are sufficiently heated, for as the affinity one metal for another is increased by heat, it is imperative to first gradually raise the heat of the higher fusing metal to or

near the degree at which the solder will fuse, and after accomplishing this, by applying the solder and then directing the flame upon both the surfaces of the parts and of the solder having previously been fluxed with a thin paste of borax, no difficulty will be experienced in causing the solder to flow nicely with but a small pointed flame from the ordinary blowpipe and without any exertion whatever. But if on the the contrary the flame be directed upon the solder before the parts to be united are sufficiently heated, it will fuse within itself and ball up, and if much time be then consumed the baser alloy or zinc will be burned out, requiring in consequence a greater degree of heat to cause it to flow than otherwise, and as the depletion of the zinc will to some extent increase the fusing point and decrease its flowing properties, the liability of fusing or burning the object to be soldered is also increased.

The parts should be fluxed before heating up, and it is always necessary to flux well the surface of the solder before attempting to control it, as containing zinc renders it so easily oxidizable it will not flow or cannot be managed unless it is properly fluxed, and in this respect it may be well to emphasize the fact that the borax should be mixed into a thin paste and applied with a small camel's hair brush or similar means, as the quantity used can be governed better and its application be made only where it is needed, thus avoiding the common and by far too generous use of powdered borax, which as has been previously stated increases the danger of cracking the teeth, renders the solder more difficult to handle and oftentimes causes the surface of the work to be freely covered with small pits.

For *investing* there are perhaps several substances which, in conjunction with plaster, possess all the desired qualities and advantages; however, we are inclined to use and give preference to the use of a material composed of ordinary fine white lake sand one-third, and plaster two-thirds, believing it to meet the requirements as well as any and much better than some, for, being considerably coarser than many, it conducts the heat better, does not expand so readily, and the sand fusing so much higher than pumice stone, avoids the previously mentioned objectionable liability in connection with that substance.

The investment should be no larger in size or bulk than merely sufficient to cover and protect the teeth and retain the parts

in position, and should be protected from expansion as much as possible by a narrow rim or ferrule of metal, or by being poured on to finely interlaced wire netting.

In instances where the parts to be soldered are not in contact one with the other, as frequently occurs, the space or spaces between may be filled in with foil gold to good advantage and thus bridged across, rendering the work of uniting them very simple; or with the use of a pointed steel instrument the solder, when just beginning to fuse, can be pulled or coaxed over and across such spaces with ease.

In *coaxing* and in the controlling and management of solder, it is of much material assistance to see and note that *gravity* be favorable, for no matter how skillful one may become, it is of course somewhat difficult to cause a given mass to run up hill against its own weight, consequently, in uniting a piece of two or more teeth for instance, and especially if it be for the anterior part of the mouth where the curvature is greater, it is necessary to change the relative position as you progress, in order that the solder may run where it is required and remain when fused in the desired location.

Another not unusual occurence of no little annoyance in the construction of a plate or crown, is the appearance of one or more small holes in the metal during the process of annealing and swaging and which is usually due to the presence of a baser metal upon the surface of the gold, usually tin or lead, which fusing so much lower than gold, becomes incorporated at its point of contact when same is being annealed, and results in the presence of a small hole. This baser metal is usually deposited upon the surface from contact with the dies during the progress of swaging, and the same with its aggravating results can of course be easily avoided by treating the metal to the acid bath after each swaging, being careful afterward, however, to thoroughly neutralize the acid by the free application of water before again attempting to heat or solder.

When the burning of such a hole does occur, or when one presents itself during the process of finishing, it can easily be obliterated with the use of a solder of same carat as gold by *sweating* over it a piece some little larger than the hole from the side not interfering with the fit or adaptation. In so doing it should not

be the attempt or desire to fuse the solder until it flows, but by first thoroughly cleaning and removing oxidation; investing if necessary to prevent unsoldering or for protection of porcelain; properly fluxing the surfaces of metal and solder; heating to a red heat, and then simply *wilting* or *sweating* the solder down to its place by the use of a small pointed intermittent flame from the blowpipe only until it becomes firmly attached without flowing perceptibly, then ceasing; the desired result is accomplished with comparative ease and very little danger.

If no investment be used or necessary, or even in cases where same is required, a precautionary means is frequently necessary to prevent the unsoldering of the parts; this can be very easily done by covering or coating such surfaces with either a solution of whiting or of plumbago, carbon or crocus (ferric hydrate), any of which will relieve all danger from that source.

I am of the impression that so far as soldering is concerned the use of the bellows is rarely if ever indicated, and should in fact be avoided, for the amount of heat necessary, which is usually very much overestimated by the way, cannot be so well regulated, and more harm than good is liable to result in consequence; and, furthermore, a greater amount of heat than the combination mouth-governed blowpipe will give, if properly applied, is very seldom required, but to blow a continuous flame is a very valuable accomplishment for the dentist doing gold work, and can be learned by most any one devoting to it a little perseverance and application.

HEREDITY IN HARE-LIP.—In an interesting paper read before the British Medical Association, Mr. William Sedgwick alludes to a communication by Dr. Allan Jamieson on "Cleft Palate and Incisor Teeth." In this it is stated that "among the children and grandchildren of four brothers cleft palate occurs in two, while others present peculiar anomalies in their permanent upper incisor teeth." In the son (K. M.) of the first brother there was harelip of the right side and fissure of the hard palate extending through the uvula and soft palate, and no trace of a right lateral incisor tooth. In the son (D. M.) of a second brother there was simply an oval aperture in the velum palati. In the son (C. M.) of a third, as well as the son (R. M.) of a fourth brother, the defect was limited to congenital absence of both lateral incisor teeth; and there was the same defect in a grandson (D. M.) of the last-mentioned brother. Mr. Sedgwick points out that, as not infrequently happens, there was in this, as in some other hereditary cases, a progressive diminution in the amount of congenital deformity.—*Brit. Jour. Dent. Sc.*

Letters.

A HINT FROM ST. LOUIS ON GUTTA-PERCHA POINTS.

St. Louis, May 5, 1896.

Editor Dental Digest,

Dear Doctor:—After lancing an abscess it is often desirable to leave a cone of medicated cotton in the opening. If we carry it in on a broach it will not always slip off. If we carry it in with pliers we distend the highly inflamed walls to the size of the cotton and pliers, plus the space we open the pliers to free the cotton, which is always withdrawn somewhat with them.

The above unnecessary pain and trouble can be avoided, and a cotton cone carried positively to the bottom of the opening, by dipping a gutta-percha point in chloro-percha and, while still sticky, wrapping it with cotton to make a cone. Then, when the cotton is on, dip the tip end in the solution, and it will go to the bottom every time, with the least amount of pain to the patient, as every motion counts.

Yours truly,

G. A. Bronson.

NEW YORK LETTER.

New York, May 18, 1896.

To the Editor of the Digest,

Dear Doctor:—"Dr. Frederick W. Dolbeare, of No. 349 Tompkins Ave., Brooklyn, died in the Brooklyn Hospital yesterday after having undergone an operation. He was born in Montville, Conn., and had practised dentistry in Brooklyn for forty years. He was a permanent member of various dental associations. He leaves a widow and one son, Dr. Frederick L. Dolbeare, superintendent of the Brooklyn Inebriates' Home."

Good men do not necessarily die young, for our friend Dr. Dolbeare was a proof of it. We speak in this wise of the natural man, for there is a goodness of natural men. Dr. Dolbeare had these qualities and those of the supernatural also. He had a conscience "void of offense" and was a favorite among Brooklyn dentists. Not infrequently be figured as "our Poet," and there was a decided quaintness and point in his verse and it rarely

failed to hit the mark. He was extremely modest, and his skill was of the honest type, faithful in all he laid his hands to, always genial, and ever with a welcome grasp of the hand.

We recall our last visit to him very vividly. He brought out a surprise, a viol that he had built himself, and as we took it in our hands and looked it over we marvelled greatly. We said, "Of course you know how to make it talk?" and presently, laying it to his shoulder, his soul fairly spoke through the music. Many of us know of music that cannot be put into words, and his execution stamped that on our innermost being. Nothing human can ever be perfect, there must be a new condition, wherein no discords can ever jar the harmony of the immortal. The ideal may be in the natural, but nothing but the supernatural ever brings it out, and it will be our mistake if we do not seek it according to supernatural direction, which can be known only by the new birth—the natural man cannot discern supernatural things. This is the weakness of Ingersollism, which is leading so many bright men on to destruction. All this may seem a digression, but it has been so real to us of late that we cannot refrain from introducing these thoughts, running the risk of being refused a publication.

This recalls a recent editorial sermon by Dr. Geo. Hepworth, in the *Sunday Herald* of May 3rd. As we read it we thought, what a good article for a medical or dental society. While we do not endorse all of it, it certainly is very suggestive regarding the part that disease is playing against health in our bodies.

Dr. S. G. Perry will appreciate the allusion to the viol and the music of the inner being, for he is a connisseur in violins.

Again, Dr. Dolbeare had great ambitions for his son, an only child. While he wished him to be a dentist, he thought he would be a better one if he could have a medical education. We somehow query why it is that a probably good candidate for a dentist is so often spoilt by a "medical education." We have had a bitter experience in this connection. The Doctor's son never filled the bill as a dentist. He did act on a board of examiners in the West, but it does not follow that a man is a dentist of superior ability because he gets on these boards—through a "political pull." Practical dentists are much needed on these boards.

That we may make ourselves clear, we think that the safer plan is to first educate in dentistry and then add the medical edu-

cation. Dr. Dolbeare, Jr., is now superintendent of the Brooklyn Inebriates' Home, and our son has been a medical missionary in New York for the last three years. Dr. Atkinson often asked, "Who maketh us to differ?" and it is not without an answer.

This is an off month with the First District Society, because of the State meeting occurring at the same time. The first of May formerly brought many changes among dentists, but this year seems an exception.

An item, it may be a novelty. We wished to weight a lower denture after we had it constructed, thinking it would be more easily kept in place. We burred a series of holes over the entire range of the inside ridge and filled them with amalgam. It was a success.

No meeting in May of the Odontological, all off till autumn, including a meet at Saratoga and adjournment to the Pacific Coast in 1897. So say enough of them for a tourists' excursion of the A. D. A. Cordially,

NEW YORK.

DOG-WOOD.—For tenderness of a tooth after root-canal filling, Mr. Baldwin uses fluid extract of Jamaica dog-wood, asserting that it has a far better effect than tincture of aconite and iodine.—*Dent. Off. and Lab.*

A TOOTH IN THE NOSE.—At a meeting of the Medical Society of Christiania, Dr. Dave showed a tooth removed from the nose of a woman aged 53 years. The patient had complained of ear trouble, and during the ordinary examination the tooth was accidentally discovered. It was situated at the junction of the floor and external wall of the nasal cavity, and was easily removed from a small depression. It is said that the patient had all her teeth, although they were placed somewhat far apart, and therefore the abnormally placed tooth may be regarded as a supernumerary one. It resembled a milk canine, and the end of the imperfect root was covered with a fold of mucous membrane, with stratified epithelium. The speaker suggested that part of the mucous membrane of the mouth, with its tooth germ, had become impacted between the superior and premaxillary bones, and thus been cut off from the cavity of the mouth. Another speaker criticised this fœtal dislocation, and believed it to be due to an inversion—a development in the wrong direction—by which the tooth had grown upwards into the nose. The same speaker also pointed out that the stratified epithelium of the mucous membrane did not prove a connection with the cavity of the mouth, as it is known that cylindrical epithelium cells after irritative processes are replaced by flat ones.—*Brit. Jour. of Dent. Sc.*

The Dental Digest.

PUBLISHED THE

TWENTIETH DAY OF EVERY MONTH.

Editorial.

THE MEETINGS AT SARATOGA.

These gatherings are the most important ones of the year. Their success, however, depends very largely upon the preparation beforehand. This is especially true of the meeting of the American Dental Association. Every section should be busy now, gathering the important work done on their particular subject in all the State and local societies throughout the country. A condensed report of all this work is what we should have each year, as it would be of great benefit from an educational point of view, and would have a tendency to more closely ally the various societies to this representative body. Much depends upon the chairmen of the different sections. We are perfecting the arrangements as fast as possible, and will give them as soon as completed. Let every society send a good representation to Saratoga and a complete report of the work done during the year.

ANOTHER STEP IN THE LITIGATION ON THE LOW BRIDGE PATENT.

We published in the last issue the decision in full of Judge Wheeler, reversing the decision given by Judges Wallace and Shipman several years ago in favor of the patent. This important decision was so great a surprise to the attorneys on the other side that they have not yet ceased to wonder at it. They immediately took action to get the case into Court again on an appeal to the United States Circuit Court of Appeals, and tried to get it first on the docket, so that it would come before two of the same judges who had previously sustained it. This made it necessary for us to go to New York, where we fought their mo-

tion and the Court refused their request. However, the following week the Court allowed them to enter their case on the docket, and, to our surprise, they succeeded in our absence in getting the case set for a hearing on May 14th, ahead of the rightful time. We received notice on Tuesday, the 12th, so that we were compelled to hurry to New York again to try the case.

Judges Wallace and Shipman, however, declined to serve, as they had decided the patent years before, and appointed Judges Lacombe and Townsend, the case being argued before these two judges instead of three, as is the usual custom of that Court. The result of this suit will not be known for some weeks, at least, so that we can only wait for the decision before taking any further steps. Should we be successful it would end all litigation in that Federal Circuit. If those who are trying to break up the Protective Association thought it advisable and advantageous to them, however, they could bring suits in any of the other Federal Circuits on the same patent. Should they win the suit now pending they would certainly try the case in other Federal Circuits. What our action would be in that event it is not advisable to make public. One thing is certain, however, we will not give up the fight, and all we ask is, that the members stand firm.

Because of the great expenditure of time and money necessary in defending these suits, we have fully decided not to protect any one who is not a member of the Protective Association.

THE ILLINOIS STATE DENTAL SOCIETY.

The recent meeting of the Illinois State Dental Society at Springfield demonstrated two things; one which every dental meeting demonstrates, viz.—that society work is of inestimable value to the members; the other, which is every year becoming more apparent to thoughtful men in the State, viz.—that the membership of the society is not proportionate to the number of dentists in the State.

It is estimated that there are, in round numbers, two thousand dentists in Illinois, and a membership of only two hundred in the State society falls short of constituting a truly representative organization. It seems incredible that members of the profession

in the State can remain so blinded to their own interests, and to the general advancement of the profession, that only one-tenth of the whole number practicing are members of the State society.

This organization is one of the most progressive and efficient of any of its kind in existence, and its reputation as a hard-working body extends far beyond the borders of this State. The published transactions contain much valuable information in every issue, and this is supplemented greatly at each meeting by the social and professional intercourse of its members. Some of the best names in the profession are on its roster, and to be connected with these men in society work is no mean privilege.

Nor is the Illinois Society an exclusive body. Any dentist of reputable bearing in the State may become a member. The stringent rules for admission at one time in vogue are well-nigh done away with, and the present sentiment seems to be, "the greatest good to the greatest number." It has been some time since the Board of Examiners of the society has demanded an examination for admission, whether the applicant possessed a diploma or not. This matter is made discretionary with the Board, and in recent years the Board has taken the stand that no reputable man, coming recommended by two of his fellow practitioners in the society, should have his ability questioned by an examination. The consequence is, that many men are made eligible for membership who would not care to submit to an examination.

In view of all these facts it seems strange that the society should have such a limited membership. It may be claimed in extenuation that the percentage of society members in the dental profession is fully as large as that in the medical profession—possibly larger. But this is not a sufficient argument to admit of our being content with the present order of things. If we can outstrip our medical friends in society work, so much the better.

At the recent meeting a movement was inaugurated tending to increase the interest of the profession throughout the State in this matter, and it is hoped that at the next meeting the society will receive a large acquisition. We make a plea for all those who are not connected with the society to take this subject under advisement, and we feel sure that an investigation will prove the

benefits to be derived from society organization. No progressive man can afford to ignore the State meeting. Come in and give us the encouragement of your presence and you will receive a tenfold advantage in return.

Book Reviews.

THE PRINCIPLES AND PRACTICE OF DENTISTRY, including Anatomy, Physiology, Pathology, Therapeutics, Dental Surgery and Mechanism. By Chapin A. Harris, M. D., D. D. S., late President of the Baltimore Medical College, author of "Dictionary of Medical Terminology and Dental Surgery," thirteenth edition. Revised and edited by Ferdinand J. S. Gorgas, A. M., M. D., D. D. S., author of "Dental Medicine," editor of Harris' "Dictionary of Medical Terminology and Dental Surgery," Professor of the Principles of Dental Science, Dental Surgery and Prosthetic Dentistry in the University of Maryland. With twelve hundred and fifty illustrations. Philadelphia: P. Blakiston, Son & Co., 1012 Walnut Street, 1896.

This is the thirteenth revised edition of a work universally known and used as a text-book by dental practitioners and students. It is published by the well-known firm of P. Blakiston, Son & Co., and is gotten up in their usual superior style.

The editor, Dr. Ferdinand J. S. Gorgas, has shown a vast amount of industry and zeal to give to the profession a work fully up to the present advanced standard of dentistry in all its branches. Many chapters are rewritten, and nearly all are added to, and the book commends itself at once to the practitioner as a necessity to his library.

THE DISEASES OF CHILDREN'S TEETH; THEIR PREVENTION AND TREATMENT. A Manual for Medical Practitioners and Students. By R. Denison Pedley, M. R. C. S., L. D. S. Eng., F. R. C. S. Edin., Dental surgeon to the Evelina Hospital for Sick Children, Southwark, London. With numerous illustrations. Published, London, 1895: J. P. Segg & Co. America: S. S. White Dental Mfg., Co., Philadelphia. 12 mo. cloth, 268 pp.

This English work is eminently what it claims to be—a handy manual for the country medical practitioner and student, giving a general and useful scope of knowledge concerning the development and growth of childrens' temporary teeth in the ordinary stages of dentition. The hints as to methods of treatment, saving and extracting are augmented by the illustrations. While many of the ideas advanced are not in accordance with current dental literature, yet to the general practitioner the work is of great value. The author has laid a foundation for a good work and the second edition can be made of greater use.

Notices.

COLORADO BOARD OF DENTAL EXAMINERS.

The Colorado State Board of Dental Examiners will hold their next meeting June 9-11, 1896, at the office of W. E. Griswold, 401 Mack Block, Denver, Col. All applications should be addressed to D. Murray, Secretary, 421 Mack Block, Denver, Col.

CALIFORNIA STATE DENTAL ASSOCIATION.

The California State Dental Ass'n. will hold its next annual meeting at Santa Cruz, commencing the second Tuesday in June, 1896. We are always happy to entertain members of the profession from abroad, and hope on this occasion to have a large number with us to enjoy this delightful retreat.

W. C. REITH, Cor. Sec'y., Sacramento.

WISCONSIN STATE DENTAL SOCIETY.

The twenty-sixth annual meeting of this society will be held in the Senate Chamber, Madison, Wis., July 21–23, 1896. An exceedingly interesting program is being prepared by the executive committee, and a most earnest invitation is extended to all reputable practitioners in the State to attend and unite with us if possible.

W. H. CARSON, Sec'y., Milwaukee.

INTER-STATE DENTAL ASSOCIATION.

The joint meeting of the State Dental Associations of Iowa, Nebraska, Kansas and Missouri, to be held at Excelsior Springs, Mo., June 23–26, promises to be one of the largest and best meetings ever held in the West.

The most eminent dentists of the four states will be present and participate.

That paragon of hotels, "The Elms," has given us greatly reduced rates,

and all railroads give one and one-third rate on the certificate plan. Be sure and secure receipt in going; if you travel over more than one road, take a certificate from *each*. It will be impossible to get reduced rates in returning without certificate.

For information or program address—S. C. A. Rubey, Sec'y, Clinton, Mo.

CINCINNATI ACADEMY OF DENTISTRY.

At the regular monthly meeting, held Monday evening, April 27, 896, the following officers were elected for the ensuing year:—President, W. T. McLean, M. D., D. D. S.; Vice-Pres., A. I. F. Buxbaum, M. D., D. D. S.; Secretary, Wm. Lockman, Jr., D. D. S.; Treasurer, J. F. Clayton, D. D. S.

ILLINOIS STATE DENTAL SOCIETY.

The thirty-second annual meeting of this society was held at Springfield, May 12–15, 1896. A good program was carried out and a large attendance was present. The following officers were elected: Pres., C. R. Taylor, Streator; Vice-Pres., E. B. David, Aledo; Sec'y., Louis Ottofy, Chicago; Treas., E. D., Swain, Chicago; Librarian, J. R. Rayburn, Fairbury. The next meeting will be held at Peoria, beginning the second Tuesday in May, 1897.

AMERICAN DENTAL SOCIETY OF EUROPE.

The American Dental Society of Europe will hold its twenty-first annual meeting at Dresden, Germany, Aug. 3–5, 1896. All members of the profession who plan to be in Europe at that time are cordially invited to attend. Further information can be obtained of the President, Dr. John H. Spaulding, Paris, or of William A. Spring, Secretary, 26 Christian Str., Dresden.

KENTUCKY STATE DENTAL ASSOCIATION.

The Kentucky State Dental Ass'n. will hold its annual meeting in Louisville, June 16–19, 1896. A cordial invitation is extended to all members of the profession in good standing to be present.

The State Board of Dental Examiners will meet at the same time and place for the examination of candidates and such other business as may come before it.

J. H. BALDWIN, Sec'y.

COMMENCEMENT OF THE OHIO COLLEGE.

The fiftieth annual commencement of the Ohio College of Dental Surgery was held Tuesday, April 14, 1896, at 8 P. M. The program was:—Music; Prayer; Conferring of Degrees and address, Dr. Frank A. Hunter, Pres. of Board of Trustees; Music; Awarding of Prizes and Remarks by the Dean, Prof. H. A. Smith; Music; Address, Rev. E. Trumbull Lee, D. D.; Music; Class Address, Fenimore Roudebush, Ky.; Music. Matriculates 215, Graduates 47.

News Summary.

THE PALISADE MFG. Co., of Yonkers, N. Y., were well represented at the Illinois State Dental Society, at Springfield. Mr. Stephen Hexter, their western agent, distributed a large number of samples of "Borolyptol," and dispensed "Kola Cardinette" to all tired and weary dentists after the clinics.

INCISIONS OF FACE.—Incisions made in the skin of the face should be placed where there is a shadow, or in the bottom of the furrows produced by the habitual expression of the patient. When this cannot be done, the incision should be parallel to the facial line rather than across it. A slightly curved incision makes a less conspicuous scar than a straight or abruptly curved one. —*Roberts.*

GUTTA-PERCHA.—PROF. GRAY has recently adopted a very satisfactory method of using gutta-percha. After drying the cavity he saturates it with common resin cut in chloroform and then presses in heated gutta-percha. It adheres to the walls like cement and does not pull away. He has found it very satisfactory in the mouths of his own children where he has the opportunity of observing it closely.—*Brit. Jour. Dent. Sc.*

"GAS" FROM THE MAIN.—A medical man was rung up about 1 a. m. by a man who complained of toothache, and wished to have chloroform administered. The doctor explained that without proper preparation and assistance this was out of the question. Then the patient demanded Gas, and was informed that he was talking not to a dentist but to a medical man, who did not keep the necessary appliances in his house. "Gas," said the patient, "have you not a meter?"—*Brit. Jour. Dent. Sc.*

DENTISTRY IN GERMANY.—According to a communication which appears in *L'Odontologie,* the total number of persons practicing the Dental art in Germany is about 3,600. More than 3,000 are mechanical dentists without a diploma; 205 are dental doctors or surgeons with foreign diplomas, while 408 are barbers, jewellers, etc. None of these may take the title of *Zahnarzte* under a penalty of 300 marks fine. The Zahnarzte number 977 and have all obtained a diploma from a German university.

CALCAREOUS FOOD AND BONES.—Dr. Miller narrates that he fed two puppies, of the same litter, the one on food stuff poor in calcareous matter, and the other on an ordinary diet. After six weeks the bones of the latter were quite normally developed, but the tubular bones of the latter were extraordinarily thin and soft, the epiphyses being like little sponges, which could be crushed between the fingers. But he did not notice that the teeth of this animal had developed more slowly or less perfectly than those of the dog fed in a normal way.—*Dental Record.*

IN HIS PALMY days John Bright was fond of expatiating on the wonderful growth of the United States in material resources, and of demonstrating that its wealth was multiplying by leaps and bounds. We are reminded of the orator's favorite theme by the announcement that Parke, Davis & Co. have opened two new branch houses to satisfy the rapidly growing demand for their

preparations—one in New Orleans and another in Baltimore—and by the receipt of their '96 price list, comprising over six thousand items and twenty-nine distinct lines of preparations! It is amazing, how this house has grown within the past fifteen years. It has been erecting laboratories by the acre, multiplying its branches and agencies, and increasing its output of pharmaceutical preparations by the ton! The ground for this amazing prosperity is not hard to find—scrupulous integrity, dignified, honorable business methods, and, above all, a strenuous desire to treat professional men in accordance with professional methods. All the world knows that the label of this firm is a warrant of purity, activity and precision in the contents of the container, and the physician realizes that in his grim battle with disease he can depend upon Parke, Davis & Co.'s preparations every time!

DR. SCHLEICH'S METHOD OF PRODUCING LOCAL ANÆSTHESIA.—He uses the following solution:

R Cocainæ muriatis	1.00
Morphinæ muriatis	.25
Sodii muriatis	2.00
Aquæ destillat.....	1000.00

M.

The maximum dose is, as a rule, 50 cubic centimetres containing .05 gram or ¾ grain of cocaine. It is injected into the tissues by means of a hypodermic syringe.—*Medical Record.*

STAGES OF ETHER ANÆSTHESIA.—When produced by inhalation there are four stages of anæsthesia. (1) The stage of stimulation, characterized by excitement and a pleasing intoxication. (2) The anodyne stage, characterized by impaired sensation, retained reflexes, delirium, which is most marked in robust individuals, tetanic contraction of the muscles, turgescence of the face, etc. (3) The anæsthetic stage, characterized by the abolition of the ordinary reflexes and of all conscious excito-motor sensibility. (4) The paralytic stage, characterized by diminution of unconscious excito-motor sensibilities, and, finally, by death from paralysis of the respiratory centre.—*John Chalmers da Costa.*

SODIUM CHLORIDE FOR RELIEF OF PAIN.—In five adult cases of faceache from decayed teeth, insufflation of sodium chloride into the nasal cavity caused the pain to disappear at once. Numerous cases of severe headache, without regard to cause, and two cases of earache which did not call for more special treatment, yielded immediately to this remedy. A physician, complaining of headache and painful feeling of strain of the eyes, due to reading and work with the microscope, was promptly relieved by the insufflation. The dose employed was two to four grains of finely ground table salt, blown into the nose just after an expiration.—*Quarterly Medical Journal.*

FORMALIN IN DENTISTRY.—Lepkowski announces in the *Przeglad Lek.*, 1895, Nos. 20 and 22, that he has found formalin very effective in cases of acute pulpitis, when even after the tooth has been filled the pain ceases in a few hours. Also after extraction of the sound pulpa, in cases of incipient periostitis, and where the pulpa is changed into an ichorous mass. He first cleans the teeth as perfectly as possible and then introduces a cotton wad

dipped in formalin, which he covers with a staniol plate, on top of which he puts the complete filling. A moderate pain follows for several hours, if the nerve had not been entirely killed. Formaldehyd kills the sound pulpa completely, with no greater pain than accompanies the use of arsenic paste, with this advantage that the tooth can be filled at once, without further cleaning. He hopes that this treatment will be found all that he expects from it at present.—*Centralblatt f. Chir.*, February 8.

THE INTOXICATING PRINCIPLE IN ALCOHOLIC BEVERAGES.—At a recent meeting of the Academy of Medicine, says the Paris correspondent of the *British Medical Journal*, M. Daremberg stated that pure alcohol at 10° is less toxic than impure alcohol, such as *eau de vie*, and above all old *eau de vie* made from wine at 10°. *Eau de vie* made from wine at 10° is less toxic than wine at 10°. *Eau de vie* is in fact wine purified. The intoxicating element in wine is not present in the part distilled, but in the residue. Red wine is more intoxicating than white wine; the latter is produced by the fermentation of the juice of grapes, whereas the red wine is the product of the fermentation of the juice, skin and pips of grapes. It is the bitartrate of potassum which constitutes the special intoxicating principle of red wine. French beer contains five per cent. of alcohol; fifty cubic centimetres injected into the veins of a rabbit produced no result. The different varieties of cider, on the other hand, were generally very intoxicating. M. Daremberg injected alcohol into the veins of rabbits rendered tuberculous three days previously. Alcohol chemically pure did no harm, but *eau de vie* and wine killed them rapidly. The wisdom of giving alcohol to tuberculous patients is therefore doubtful. The toxic quality of alcoholic drinks is not thoroughly evident when there is neither kidney nor liver trouble. Healthy subjects easily eliminate these toxic substances, which under certain circumstances may even be valuable as occasional stimulants.

A NEW ANTISEPTIC—LORETIN.—Dr. Herbert Snow, surgeon to the London Cancer Hospital, speaks in the highest terms of loretin as an antiseptic. It is an iodine compound, acid in nature, and forms compounds with sodium that are soluble in water. Dr. Snow says (*British Medical Journal*): "My own experience is confined to the powder, which I have never found occasion to mix with any other substance. Dusted on the skin, or over a granulated wound, this causes not the slightest irritation or unpleasant sensation. It immediately destroys the malodor of the most fœtid cancerous sore, controlling this in a manner which no other agent I have yet tried will do. Copiously puffed with an insufflator into the deep cavity formed by evacuating the axilla of carcinomatous glands, it efficiently precludes suppuration, even when free hemorrhage has taken place after the closing of the wound, an occurrence almost inseparable from anæsthetic vomiting when the patient has been removed from the operating table. Not the slightest bad symptom from its employment in this way has so far been detected. When there is no deep cavity, a wound dusted with loretin heals rapidly by first intention. I have had recourse to loretin in some sixty cases, mainly operations on the breast and axilla, notoriously a test region for antiseptics. In my hands it has proved an ideal antiseptic and deodorant, with no single drawback; and I am sure that no surgeon who has once tried it will ever again resort to the noisome and toxic iodoform, from the free use of which I have seen more than one death."

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